TJ
390

PACKAGE engineering

THE JOHN CRERAR LIBRARY
JUN 21 1956

Practical techniques of heat sealing

A veteran plant superintendent reveals some operating methods of heat sealing polyethylene, cellophane and thermoplastic paper—and suggests some possible answers to unsolved problems. (See Page 11)

Creative engineering finds new methods

Not satisfied with existing ways, a works manager leads his staff into a new realm of mechanized packaging — all resulting in an automatic packaging line for bearings. (See Page 14)

Shortcuts to bottling line improvement

Combining standard units of packaging machinery with specially-built devices and novel procedures, a writing fluid producer capitalizes on its concentration on a single line of products—for peak efficiency. (See Page 24)

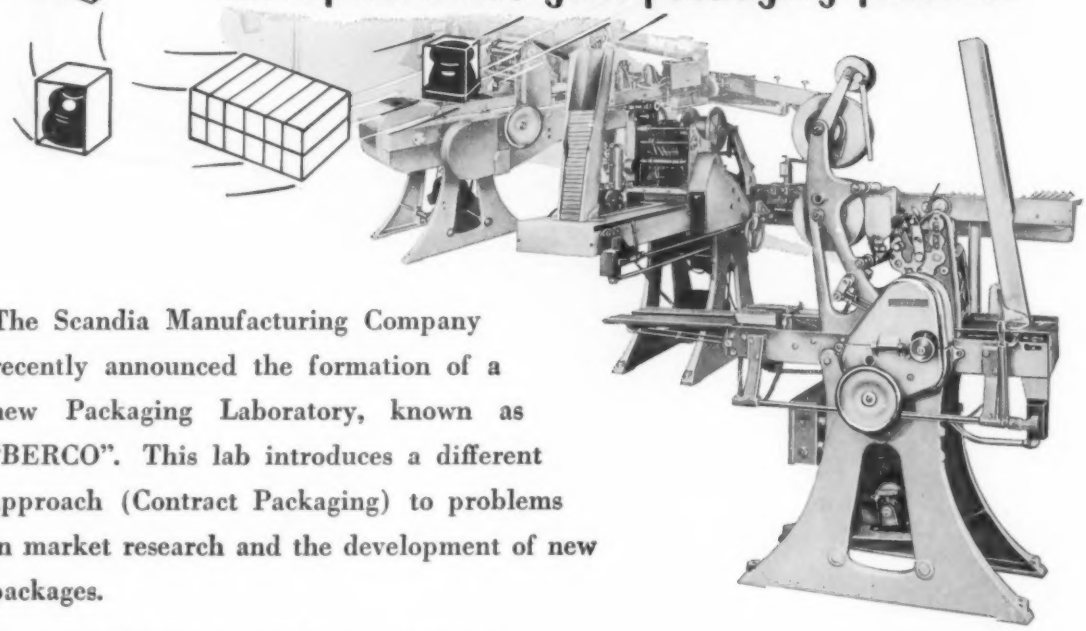
Complete table of contents on Page 2

JULY 1956

VOLUME 1 • NUMBER 7

consult

let experts solve your packaging problems



The Scandia Manufacturing Company recently announced the formation of a new Packaging Laboratory, known as "BERCO". This lab introduces a different approach (Contract Packaging) to problems in market research and the development of new packages.

Berco specializes in problems relating to:

- **BANDING**
- **BUNDLING**
- **MULTIPLE-WRAPPING**
- **HIGH-SPEED WRAPPING**

BERCO

Package Research & Development

BRONANDER ENGINEERING & RESEARCH CORP. • NORTH ARLINGTON, N. J.

For more information circle No. 201 on Reader Service Card

Aluminum Foil Packaging as a Grease and Oil Barrier

Report No. 4 of a Series by Reynolds Metals Company

Aluminum foil, being a solid metal membrane, is a complete barrier to oils and greases. As an additional factor, it is also non-absorptive to oils and greases. Each of these advantages is extremely important in selecting a packaging material for an oil-containing product.

The barrier property of the metallic membrane helps keep the oil within the product where it belongs. It also keeps the oil within the package, making the package cleaner and more attractive.

The fact that the aluminum foil membrane is non-absorptive minimizes the surface area of any oils in contact with it and, accordingly, greatly assists in retarding oxidative rancidity of the oils.

The Stark & Wetzel ham package illustrates very effectively how these greaseproof properties of aluminum foil are utilized. Cured hams, well known to be a product of high oil content, are wrapped in a combination of aluminum foil interleaved with paper. The paper, incidentally, is an important part of the combination since it is one especially developed for this application as it absorbs the surface moisture and oils from the ham.

As an added attractive feature, the aluminum foil serves as a baking wrap. The housewife puts the ham in the oven in the package as received. The foil holds in the savory juices, to produce a better-flavored ham. By the same moisture-retaining action, the foil helps reduce oven shrinkage and, since the meat does not touch the pan itself, most scouring is eliminated.

A great variety of consumer items, ranging from soup to nuts, can utilize this greaseproof property of aluminum foil. The range of industrial items is also wide, including electric motors and airplane engines. Many of these products require combinations of aluminum foil with other materials in order that existing packaging procedures and standard packaging machinery can be utilized.

Reynolds research facilities and experience in solving particular packaging problems requiring grease and oil protection are available through Reynolds regional representatives. Or write to **Reynolds Metals Company,** General Sales Office, Louisville 1, Ky.

© Reynolds Metals Company, General Sales Office, Louisville 1, Kentucky

JULY 1956 • VOLUME 1 • NUMBER 7

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

A look ahead

Only rarely does a packaging expert reveal the entire subjective process of working out a new package. Next month we shall feature an article by Halden L. Lewis, of Corning Glass Works, which does just exactly this. Mr. Lewis not only tells the complete story of the development and application of a new package for pie plates, but also reveals the trials and tribulations entailed in getting a new package into actual production. Anyone concerned with teamwork within a company will find his article "must" reading.

Another significant feature will be an article by R. P. Kessler, director of packaging research, Arkell and Smiths, discussing a number of new developments in the field of multiwall paper shipping sacks. Mr. Kessler not only points out what is new in this field but also describes the practical applicability of these developments. Also he pinpoints some of the future trends in multiwall usage.

Also we should like to remind readers to take "a look ahead" at their calendars for September. There will be two important events held in Cleveland. Packaging Institute is holding its 18th annual forum September 10-12. Also, the Packaging Machinery and Materials Exposition will be held September 11-14. No one concerned with technical and operational packaging can afford to miss these events.

— R.B.H.

Contents

11 **Practical aspects of heat sealing flexible packages,** by William R. Fieroh, superintendent, I. J. Grass Noodle Company
An expert with long experience both as an equipment supplier and as a user discusses his approach to heat sealing, and reviews some of the problems involved—both solved and unsolved.

14 **Creative engineering leads to new concepts in bearing packaging,** by P. C. Booty, works manager, West Pullman Works, International Harvester Company
The man who spearheaded the now widely known mechanized packaging of bearings at IH tells in detail how the basic ideas underlying this development came about, and reveals the sketches of integral phases of producing the equipment involved.

24 **Plant ingenuity helps step up bottling line production**
Those who operate the "Skrip" writing fluid plant of W. A. Sheaffer Pen Company have come up with a number of ideas involving methods and equipment—all designed to improve the operation of their lines.

29 **Filling and sealing extruded polyethylene containers,** by Laurence V. Burton, consulting editor, Package Engineering
The second part of a two-part article in which Dr. Burton not only reviews the basic machinery and methods for this operation but also outlines some ideas contributing to enhanced production on lines using these containers.

36 **Another way to measure a corrugated box,** by Charles J. Zusi, president, Container Laboratories, Inc.
A container testing expert replies to the suggestion made in an article in our June issue (urging the "center-to-center of score" method of measurement) by asserting in this article the importance of the user giving more latitude to box manufacturers in determining scoring allowances.

38 **Announcements of machinery and products**

45 **Industry literature available free**

50 **Classified advertising**

52 **What we think** (our editorial page)

Reader service card inside back cover

How to Improve Your Packaging Operations..

SEND FOR the new Paisley 4-page Packaging Adhesive Guide. It contains valuable information about the most modern Adhesives ever designed for specific sealing operations *in the packaging field!* Subjects include Carton Sealing Glues, Case Seal Glues, Bottle Label Glues, Can and Tube Labeling, Resin Emulsion Adhesives and Wrapping and Bundling Adhesives.

Paisley's popular Technical Service Bulletins covering these subjects in complete detail are also described. Facts are presented concerning our scientific laboratory control methods of manufacture and on the Paisley Adhesive Operation Data Sheet which in effect places all of our extensive modern laboratories and skilled technical staff at your command! This Scientific Adhesive Service assures you the ONE *best* Adhesive for the job!

All this valuable information and service is FREE. Will you ask for your Packaging Adhesive Guide on company stationery, please?

SEND FOR FREE COPY NOW!

PAISLEY PRODUCTS INCORPORATED
Division of MORNINGSTAR, NICOL, INC.

630 WEST 51st STREET, NEW YORK 19, N.Y. • PHONE COLUMBUS 5-2860
1770 CANALPORT AVENUE, CHICAGO 16, ILLINOIS • PHONE CANAL 6-2219

Manufacturers of Glues, Pastes, Resin Adhesives, Cements and Related Chemical Products

PACKAGE engineering

AN ANGUS J. RAY PUBLICATION

Angus J. Ray
Publisher

R. Bruce Holmgren
Editor

Laurence V. Burton
Consulting Editor

Irwin F. Megargee
Eastern Manager

Anne Bernhard
Business Manager

Burton Cherry
Art Director

Executive and editorial offices:
1791 West Howard Street,
Chicago 26, Illinois
Telephone: Briargate 4-7837

Eastern advertising sales office:
P. O. Box 270
Ocean City, New Jersey
Telephone: Ocean City 3519

A note from the Publisher

This month our Industry Literature Section (page 44) carries two items to which I'd like to call your particular attention. The first item (101) is a request to receive more information about the Packaging Institute's 18th Annual Forum being held in Cleveland September 10 to 12, and the second item (102) is a request for a pre-registration badge for the Packaging Machinery and Materials Exposition which is being held in Cleveland also, from September 11 to 14.

Because these two important events take place during the same week in Cleveland, you are offered the opportunity of attending the always worthwhile discussions of the Packaging Institute and, at the same time, of seeing the practical working exhibits of machinery and materials at the PM&M Exposition.

While these two meetings undoubtedly are well known to many of our readers, for those of you who are not familiar with them, may we offer a word or two of explanation:

The Packaging Institute is an association composed of leading users and suppliers of packaging machinery and packaging materials. It operates on the premise that all will profit by open discussions of packaging problems of an engineering, technical and economic nature. There are numerous committees which function throughout the year to contribute solutions to these problems, and the Annual Forum is the highlight of the Packaging Institute year.

The Packaging Machinery and Materials Exposition is making its debut this September, and is the first packaging show to be devoted exclusively to packaging machinery and packaging materials. It is being sponsored by the Packaging Machinery Manufacturers Institute, and subsequently will be held every other year.

For further information on either or both of these meetings, use the Reader Service Card inside the back cover of this issue and we will see that you receive the information you want. Circle 101 for information on the Packaging Institute Forum, and circle 102 for a pre-registration badge to the Packaging Machinery and Materials Exposition.

Angus J. Ray
Publisher

Package Engineering is published monthly by Angus J. Ray Publishing Company, 1791 West Howard Street, Chicago 26, Illinois. Angus J. Ray, president; R. B. Holmgren and I. F. Megargee, vice presidents; James G. Culbertson, secretary and Ethyl K. Ray, treasurer. Please address articles for publication and correspondence regarding the editorial content to the editor. Statements and opinions expressed in articles and editorials are those of the respective authors, for which Package Engineering assumes no responsibility.

Copyright 1956 by Angus J. Ray Publishing Company.

Accepted as controlled circulation publication at Aurora, Illinois.

Package Engineering is circulated without charge to engineering, research, development, production and purchasing personnel concerned with packaging in all companies packaging their products for marketing or shipment. Qualified recipients thus are engineering and technical personnel concerned with package research and development, packaging production and package purchasing, within the United States, to all others, the subscription price is $10.00 a year.

For more information circle No. 204 on Reader Service Card →

i[D]ea at work...

Dobeckmun Veri-Kleer polyethylene wraps Canterbury sweaters in luxury.

Nothing enhances the desirable softness and beautiful colors of sweaters like Dobeckmun's clear, sparkling polyethylene bags. Your customers will tell you that they produce profits through faster sales. *Their* customers are impressed by sweaters protected by handsome Dobeckmun packages printed with your name—re-use them at home—and come back to buy the same brand. Another profit factor: easier handling means greater economy. To present your sweaters at their best on counters from coast to coast, consult your Dobeckmun representative. Or write Dobeckmun direct.

Dobeckmun Company, Cleveland 1, Ohio • Berkeley 10, California

Albuquerque • Atlanta • Baltimore • Boston • Charlotte • Chicago • Cincinnati • Dallas • Denver • Detroit • Indianapolis • Kansas City
Los Angeles • Memphis • Milwaukee • New Orleans • New York • Omaha • Philadelphia • Phoenix • Pittsburgh • Portland • Richmond
Rochester • Salt Lake City • San Antonio • Seattle • St. Louis • St. Paul • Syracuse • Tampa • Yakima • Havana • London • Amsterdam

CROWN ZOOMS AHEAD

Box HT, Crown Cork & Seal Co., Inc.
9300 Ashton Road, Phila. 36, Pa.

☐ Send Descriptive Brochure
☐ Send Sales Representative

NAME _____

COMPANY _____

TITLE _____

ADDRESS _____

SEND FOR FREE DESCRIPTIVE BROCHURE!

ASK A CROWN SALES REPRESENTATIVE TO CALL!

—TO EVEN GREATER LEADERSHIP IN AEROSOL PACKAGING BY SUPPLYING THE INDUSTRY WITH NEW 12 oz. SPRA-ETTE CONTAINER

"SPRA-ETTE" Is Crown's New Companion To Famous Spra-Tainer,
The Original and Foremost Aerosol Package In The Lightweight, Consumer Field

NOW you can fill *all* your needs for metal aerosol containers by coming to Crown. Drawing on long experience with seamless Spra-Tainer, Crown engineers have designed a superior fabricated aerosol package for manufacturers of insecticides, hair sprays, paints, etc. Second only to Spra-Tainer, "SPRA-ETTE" is the top container of its kind on the market.

Advantages of "SPRA-ETTE"

*Crown's success in aerosols is unparalleled. At every step you get the benefit of accumulated "Know How" which just doesn't exist elsewhere.

*Interior Coatings of Proved Dependability.

*In "SPRA-ETTE" as in Spra-Tainer, you get Crown's exclusive, foolproof technique of seating and sealing-in valves.

*Structural Strength and Dimensional Stability

*Hard-Selling Label Design and Full-Color Lithography in New, Modern Plant.

*Interchangeability of filling lines between Spra-Tainer and "SPRA-ETTE"—of particular advantage to the loader.

Crown ... for Better Packaging

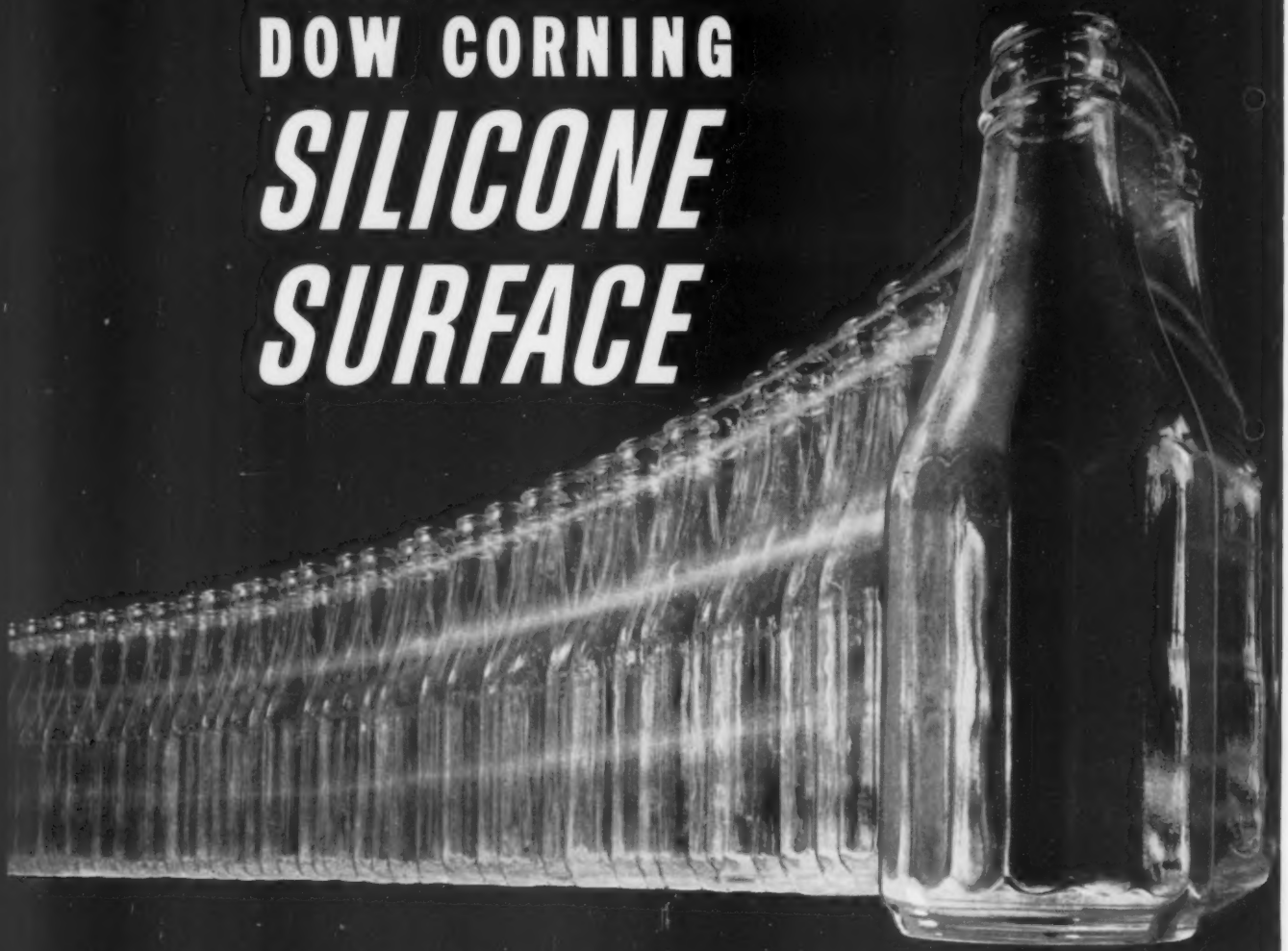
CROWN

CROWN CORK & SEAL COMPANY, INC.

PHILADELPHIA • CHICAGO • ORLANDO • BARTOW • BIRMINGHAM • BALTIMORE • NEW YORK • BOSTON • ST. LOUIS • SAN FRANCISCO

SPECIFY A

DOW CORNING *SILICONE SURFACE*



increase filling rate by as much as 80%

Better slip • Less wedging • Fewer jam-ups

reduce line breakage by as much as 50%

Greater resistance to bruising and scratching

improve appearance for life of container

Permanent protection • Won't wash off

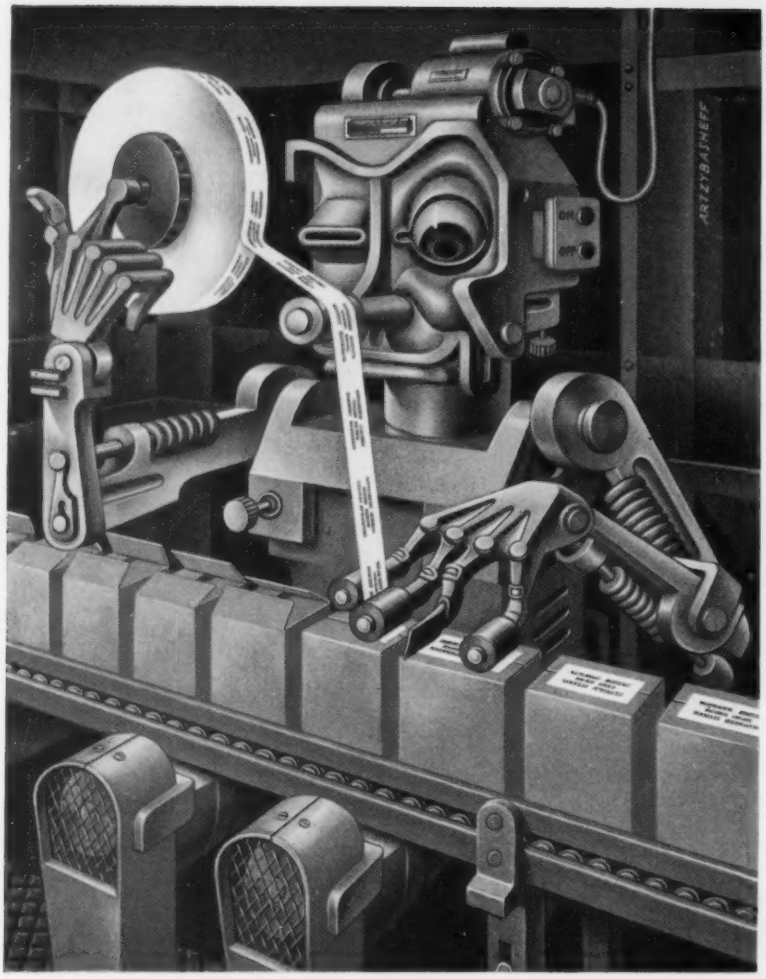
available at little or no additional cost

specify glass containers with a Dow Corning SILICONE SURFACE . . preferred by leading brand-name packers and container manufacturers.

for more information write

DOW CORNING CORPORATION
MIDLAND, MICHIGAN

first in silicones



AUTOMATION?
you name it...we'll tape it!

The trend in industrial production is toward *automation* . . . and tape application is no exception. There are more than 75 different types of manual, semi-automatic, and automatic dispensers for "SCOTCH" Brand Tapes. These basic types lend themselves to an infinite variety of adaptations. Chances are, wherever you use (or *could* use) tapes, we can provide a dispenser that will enable you to enjoy cost-saving, production-speeding benefits.

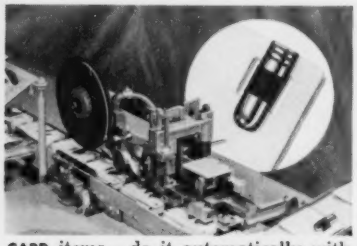
PRODUCT OF 3M RESEARCH **DISPENSERS**... *to speed the application of the more than 300 pressure-sensitive tapes for industry, trademarked . . .*

REG. U.S. PAT. OFF.

SCOTCH
BRAND

Look what you can do with dispensers!

FLAT-SURFACE applicator, dramatized by Artzybasheff at left, automatically applies predetermined lengths of tape to moving objects at production-line speeds of better than a unit a second.



CARD items – do it automatically with "SCOTCH" Brand Tape. Here, tubes and pre-printed cards are brought into position in "tape stapler"; printed, transparent, or colored tape automatically locks tube and card together.

COMBINE two or more same-size packages automatically with "SCOTCH" Brand Tape and "SCOTCH" Package Bundler S-69. Handles up to 75 combinations a minute; special cut-off synchronizer available for printed tapes.

SEND FOR free folder describing automatic, semi-automatic, and manual "SCOTCH" Brand Dispensers for production, packaging, and assembly. Write on your letterhead to 3M Co., Dept. L.Y. 76.

The term "SCOTCH" is a registered trademark of Minnesota Mining and Manufacturing Co., St. Paul 6, Minn. Export Sales Office: 99 Park Ave., New York 16, N.Y. In Canada: P.O. Box 757, London, Ontario.
© 3M Co., 1956

3M COMPANY

← For more information circle No. 206 on Card

↑ For more information circle No. 207 on Card

here's what

SHEFFIELD "PACKAGEERING"*

means to you!

Technical superiority backed by 105 years experience

The Sheffield Process—an exclusive method of manufacturing collapsible metal tubes—is the result of four generations of study, research and most important . . . experience. This formula is used in the manufacture of all Sheffield Tubes producing a degree of flexible toughness attained by no other means.

One example of Sheffield's many production "firsts" is Vinicote—a variety of protective inner linings developed by our research laboratories. Sheffield Vinicote makes possible the tube-packaging of the following different products:

Acid or alkaline toothpaste • Corrosive drugs and chemicals • Readily leakable oils and greases • Astringent creams • Vaginal jelly • Pharmaceutical ointments • Lather or brush-type shaving creams • Soft soap • Mascara • Certain foods such as Anchovy Paste, Fruit Jellies, Cheese Paste, Cake Frosting, Honey, Peanut Butter

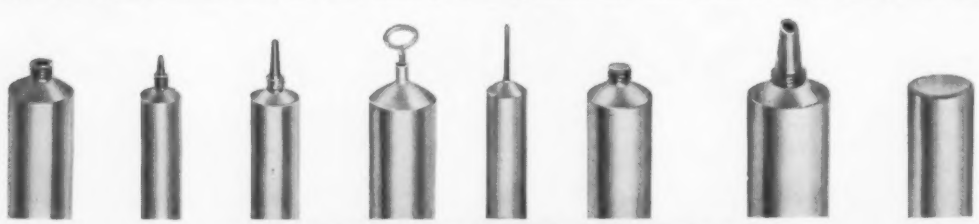
Sheffield representatives are technically trained

Your Sheffield representative will gladly explain how Sheffield technical superiority can insure the efficient and dramatic packaging of your product. He is more than just a salesman; he is a technician highly trained in the science of collapsible metal tube packaging.

For full information on Sheffield Packageering, write for our free brochure . . . no obligation of course!

* **SHEFFIELD PACKAGEERING:** The vigorous science of designing, creating and producing the collapsible metal tube most perfectly suited to your product . . . your marketing needs.

SHEFFIELD TUBE CORPORATION factory and home office: New London, Connecticut • sales offices: New York • Chicago • Los Angeles



For more information circle No. 208 on Reader Service Card

William R. Fieroh has been associated with I. J. Grass Noodle Company for 17 years. Prior to that, for 13 years, he was with Triangle Package Machinery Company, on installation and "road" work. His engineering and operational training is largely the result of experience and machine shop work. During his years in his present capacity he has been responsible for a number of packaging machinery developments.

Here is a review of day-to-day problems of heat sealing which represents the experience of a lifetime that includes both user and supplier experience and viewpoints. In this article, Mr. Fieroh not only discusses his own practical solutions to heat sealing difficulties but also outlines some ideas and possibilities for new approaches in heat sealing equipment and techniques.

Practical aspects of heat sealing flexible packages

By William R. Fieroh,
Superintendent,
I. J. Grass Noodle Company,
Chicago

The heat sealing of polyethylene and cellophane bags, as well as thermoplastic paper, is a topic that we find requires a lot of attention. In one way, we think we have solved a lot of problems and in another way we think we have many questions to which we don't have the answers. A quick review of our packaging operations involving heat sealing may help throw some light on the whole business. Possibly, our discussion may stimulate others to review their experiences, thus adding to the general sharing of knowledge in the packaging field.

Sealing Polyethylene

We make extensive use of preformed bags of polyethylene one and a half mils thick. Further, we have developed our own heat sealer that seals 18 to 25 bags a minute, with a temperature range of 290 to 320 degrees F.

Our sealer has one hot roll, which is bronze. Also, in this connection we use a pendant roll for the sensitive sealing of various thicknesses of polyethylene. We can disengage our pendant roll from the hot roll (such as during shutdowns) by merely relieving the counter-balance one-half turn.

While this equipment is used for polyethylene bags on a production basis, my own opinion is that our machinery can be made to work on cellophane bags as well. In the interest of stimulating further thought, if not actual machine development, I am throwing out a speculative challenge to the machinery field: What progress can we expect in a single machine handling both polyethylene and cellophane?

Likewise, we are just beginning to experiment with our polyethylene sealing equipment on films such as Pliofilm. My opinion is that we shall find some success in doing this at about the same temperature range and general set-up as we use in polyethylene heat sealing.

No Preheating Used

Our experience with polyethylene and our observations on the nature of the material itself indicate that no preheating is necessary. Further, we think we would have some additional problems on our hands if we did try preheating. For one thing, there would be a very critical temperature range. I should think this would not exceed plus or minus ten degrees of 300 degrees F.

On the other hand, without any preheating equipment, a temperature fluctuation as much as 15 to 20 degrees does not seem to have any effect on the heat sealing operation. But with a preheating arrangement, the close control of temperature would be necessary. For all practical purposes this would be needed in order to avoid having the material curdle or distort.

Using Release Agent

We have a set-up for handling a silicone release agent in connection with our heat sealing. An oil drip mechanism provides about eight drops a minute—which seems to be satisfactory for the release roll or hot

roll. By using this amount we find that we can seal at a production speed, that is, about 18 to 20 five-inch bags a minute. Offhand, I think we might operate at speeds as high as 28 bags a minute without adverse effect. So far, however, we have not had any real experience with sustained production operation at this high a rate of speed.

Probably our experience with these release agents is about the same as other users. We employ this material to leave, in effect, a lubricant between the sealing surface and the material, so as not to stick or shear the top of the bag. Without using it, I think we'd cut the bag in two. That is my own opinion; possibly, other users have different views on the subject.

In connection with our silicone usage, we use Neoprene backing material at the hot roll. This is very satisfactory. Our experience is that the material can stand heat up to 500 degrees F without burning or scorching.

Proper Roll Cleaning

As we gained experience in heat sealing, found it very important to keep our roll clean. Possibly others have found this helpful to them. Those who are having heat sealing problems at the start of a shift might check this point.

At the end of a day's run, an accumulation of polyethylene has built up, like an irregular coating of what are virtually hard, clear fragments. As the roll cools, they become hard in this condition. We insist on the cleaning of rolls at the end of each day. The pieces simply have to be scraped off. At this time they have the character of polyethylene that has been melted over and chilled down.

If you don't clean the roll, you have poor production, at least for a time, the next day. This accumulation or build-up interferes with proper heat sealing. What happens is that the building-up causes a separation of the roll, in effect, a gap, from the material to impair the sealing.

If there is enough build up, the separation will be sufficiently great that you won't get good sealing for at least a half hour and perhaps an hour after starting the day's operation. But if you insist on adequate cleaning of the roll the night before, you are avoiding this condition and should not experience any difficulty on this point.

Positioning Of Bag

There is unquestionably no particular novelty in our practice of bag positioning. However, mention of it may prove helpful to those just getting into the heat sealing operation. We put the seam part of the bag to the cold roll and the front surface of the bag to the hot roll.

On our equipment what apparently happens is that the change of counterbalance has the freedom of counterbalancing, and this takes place at the seam. The practical result is that the hot roll follows the contour of the front surface of the bag.

The Polyethylene Itself

We certainly are not technical experts on the subject of polyethylene, but an observation or two gained from our experience may shed some light on a problem facing someone who is new in the use of the flexible packaging. We have found that changes or variances in the characteristics of polyethylene at the time of its manufacture have a distinct bearing on the question of getting a proper heat seal.

In other words, we have observed that some of our heat sealing difficulties trace to the fact that some polyethylene bags have a brittle character and others have a soft, velvety texture. The resulting difficulty is that bags of the stiffer material will not seal at any temperature we can provide—unless they are subjected to the heat sealing process for a long time duration.

This dwell time is too long for use with practical production speeds. However, with the cooperation of the able converters who are supplying us bags, we are working out this difficulty. I hesitate to elaborate on the technical material aspects of the problem because we do not have the research facilities to give us the answers on which to base such elaboration. I mention this, however, to remind users that their heat sealing troubles may trace to the material itself. Careful investigation may be justified.

Heat Sealing Cellophane

Several years ago we devised our own equipment for the heat sealing of cellophane and have since kept this equipment "up to date" with a number of modifications. Basically, what we are doing is the heat sealing of pouches three by four inches each, at a rate of 108 pouches a minute. We use 450 MST cellophane and our seal-

Four shortcuts to improved heat sealing:

1. Be sure to clean the hot roll at the end of a day, to get rid of the build-up of material on it.

2. With a powdery product, make the discharge as close to the pouch as possible, to prevent particles being blown back up — into the heat seal area.

3. In a pinch, you can use ordinary electrical tape on your heated surfaces, as a substitute until you install Teflon in the usual way.

4. Without a preheater (for polyethylene sealing) your temperature range can be much less critical than when there is a preheater.

ing temperature range is 350 to 375 degrees F.

When using Teflon or other sticking preventive material, we have temperatures between 400 and 420 degrees F. The added heat is necessary in order to penetrate the Teflon. Incidentally, in an emergency, we used a standard electrical tape, "Scotch" No. 27 and it did the job very well for us. But since pressure-sensitive Teflon tape is now available, we are starting to make use of it and are looking forward to ascertaining our results with it.

Application Of Teflon

Like other users, we have learned that the application and use of Teflon is critical. Obviously, we have to mount it in such a manner that the screws or bolts are out of the way of the heat sealing area.

We wonder if others are speculating like we are on the finding of new ways of attaching Teflon. Has anyone had any experience with the use of porcelain jaws for this purpose? We are thinking of starting some experimental work in this direction. It may be that others have solved this problem, which we are just now tackling, but the idea of porcelain jaws intrigues us.

The real problem would seem to be just how jaws would stand up during the constant machine action under production conditions. Perhaps some day someone will come knocking on our door with the answer to this one. Meanwhile, we are looking into the matter of making our development in this connection.

Variations In Coatings

Another difficulty that we have encountered in the heat sealing of cellophane is that of the variations in the thermoplastic coatings on the cellophane. These variations have given us trouble from the standpoint of speed and of maintaining production.

Apparently it all boils down to the fact that there are variations in the chemical nature or properties of the materials themselves. When we find this condition, we simply switch from roll to roll to find those which do not have the apparent trouble. We have found the engineers and technical people of the suppliers' organizations very helpful.

We do not have the facilities for delving into such matters. However, we have been aided by the suppliers; their laboratories have gone into the problem for us. Even so, it is one that we are still working with. The chief lesson learned seems to be that when the problem arises, it will take the help of the supplier to solve it. Our own participation is that of trial-and-error experimentation—to find what will and will not work in our plant.

Getting Good Seals

A major feature of our own equipment is its method of getting the product into the pouch with as little turbulence as possible. This is done to prevent the product blowing back into the cross seal at the instant of fill, when the material is displacing the air. We accomplish this by having the point of discharge and the pouch itself as close together as possible. In other words, we have placed the filling unit as close to the discharge point as we could.

It is very important to know just what your material is and to recognize what happens to it during the act of filling and sealing. Some materials or products are of such a nature that the dust in the ingredients will prevent a heat seal if the material gets into the sealing area.

In fact, when one is choosing packaging machinery for a particular operation, it is important to be sure that the material and the machine are "right" for each other, so to speak. Otherwise, you may get only half the expected speed out of the equipment, because, largely, of product getting into heat seal areas.

While this article is not the place for a debate of the pro's and con's of building machinery versus buying it, and without getting into a discussion of that topic, we might use our own equipment to illustrate our point about product transfer and good heat sealing.

Sealing And Movement

On our machine each pouch forms around a small cup. The product discharge comes from a volumetric filler. The cut-off takes place at the anvil at the end of the machine. The pouch material goes through vertical (side) and horizontal (top) sealing. Since successive packages are joined by the vertical heat seals, the separation of individual pouches takes place at the cut-off.

A feature of our heat sealing action is that we provide a reciprocating action so that for an instant the sealing jaws in closed position ride with the moving package. This gives an adequate dwell time, even though the interval is less than one second.

We provide a very short discharge into the cups. This is to keep the product from getting into the seal. Because of the timing action, the seal takes place instantly following the discharge or transfer; in effect, we don't have to "wait" for the heat seal.

Using Thermoplastic Papers

On one of our operations we band two cellophane-overwrapped cartons with thermoplastic paper. At first, we had trouble in connection with heat sealing. However, this proved to be entirely mechanical rather than involving materials. It happened that we were not providing enough dwell time.

We solved this simply by rebuilding the wrapping machines in a way that they could hold each package in suspension for a period of one and three-quarters to two seconds. On each of the standard units, prior to the rebuilding, the material passed through the heat chamber so fast that it did not give the thermoplastic material time to melt down, to adhere to the cellophane of the overwrap.

As soon as we found a way to increase our dwell time, through providing a mechanical way to suspend each package momentarily, our problem was solved. We are using a temperature of 300 degrees F plus or minus ten to 15 degrees. Possibly, we could increase our dwell time to as much as two to three seconds. However, we have had satisfactory results at just less than two seconds. But there must be some dwell time in making a heat seal of this sort.

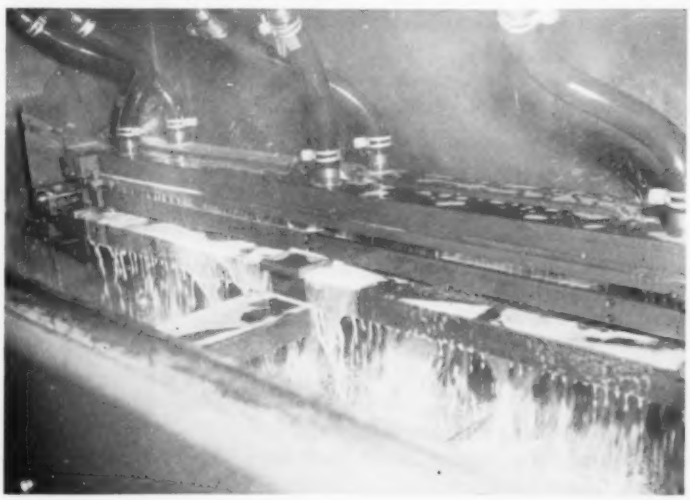
Our system of holding a package in momentary suspension provides the necessary dwell time, assuring a seal.

Creative engineering leads to new concepts in bearing packaging

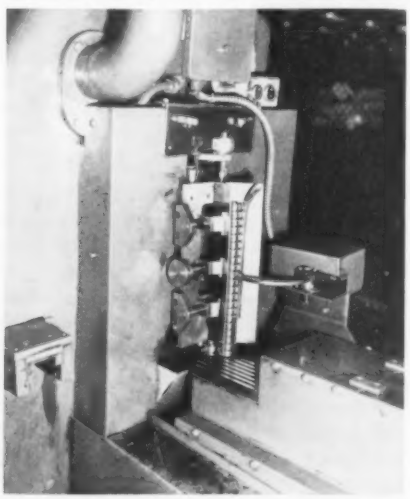
By P. C. Booty,
Works Manager,
West Pullman Works,
International Harvester Company,
Chicago

Although International Harvester's mechanized packaging of bearings has become a widely known operation, the real story underlying the development of the system has never had the emphasis it deserves. In this article the man who spearheaded the whole thing not only reviews the basic engineering thinking but also presents the sequence of drawings that illustrate the main ideas.

Interior of ball bearing washing machine.



Automatic feeding device on ball bearing washer.



Philip C. Booty, born in Australia, received his education at Melbourne Technical College. Soon thereafter he moved with his parents to the United States. During his career with International Harvester he has been largely responsible for developing the ball bearing department of West Pullman works and bringing it to its present position of being one of the most modern in industry. He has been works manager of West Pullman works since 1943.

In the summer of 1951, rains—and floods — came to the Southwest. Among other things, warehouses and the materials they contained were inundated. And in some places, such as Kansas City, some of the warehouses contained (among many parts of all description) International Harvester ball bearings, shipped for service from Harvester's West Pullman works in Chicago.

As soon as possible, bearing specialists were flown from Chicago to work with dealers in reclaiming as many badly needed bearings as possible. In virtually all cases, tests made on the spot and in Chicago showed that bearings which were recently packaged under our new method were undamaged.

At West Pullman works we took great encouragement from this fact. Shortly before the floods we had changed from tuck-type cartons to sealed fibre cans. From the flood we learned conclusively that our decision had been correct.

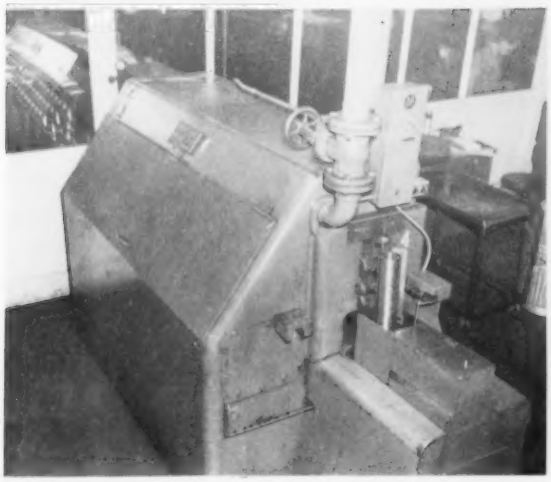
The success of the fibre cans, however, was only part of a story which had gone, and is continuing to go, through many stages of development. Before bearings, or any other precision parts, can be "canned," a series of operations must take place between the end of the assembly line and the end of the packaging line. Developments in some of these operations are stories in themselves.

Develop Packaging Room

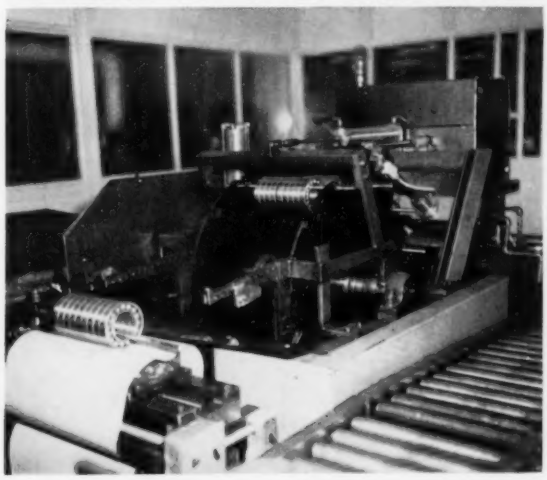
At West Pullman works, for example, we spent months designing and constructing an air-conditioned room in which bearings can be packaged under atmosphere-controlled, dirt-free conditions. Months were spent improving the first operation on the finished bearings — washing; on the second operation—motor and hand testing; on the third operation — lubrication and protective coating. We even put a great deal of time and effort into the development of a labeling system which would match the fine appearance of the rest of the sealed fibre packing cans. We do not claim to have attained perfection yet — but we do believe that we have made great strides in the packaging of ball and roller bearings. Perhaps, too, the reader may be interested in some of the stages of development. Primarily, this article concerns with the development of the washing, lubrication, protective coating, paper cutting, and labeling machines.

There were many reasons for the development of our present automatic bearing flushing, or washing, machines. Originally this operation was performed in individual, hand-operated fixtures, with six fixtures in each flushing tank. Requirements included a large number of individual fixtures to take care of the different bearing sizes and, of course,

General view of auto bearing washer.



Ball bearing greasing machine, showing conveyors and paper cutter.



a great deal of set-up time when changing over from one size to another.

The flushing fixtures were such that when high pressure oil was passed through them, the inner bearing races were spun rapidly. While this operation accomplished a satisfactory flushing job, it lacked speed. Since the time element is a very important factor in oil flushing of bearings, it soon became apparent that this method had the disadvantage of difficulty in controlling the time cycle.

Automatic Equipment Vital

At this point, bearing assembly had been completed, and the bearings were being delivered to the flushing area at a constant rate by power conveyors. With this method of flushing, material piled up and the constant flow into the packing area was not maintained. To overcome this problem, an automatic flushing machine was needed — one that would feed bearings into and through the machine at a constant rate and thus act as a bridge between the flushing area power conveyors and the power conveyors in the air conditioned packing area.

Development of the desired machine presented a number of problems: It must feed bearings automatically and at a constant rate per minute in order to keep pace with the conveyors feeding it. Also, it must be easy to adjust to all combinations of widths and diameters of bearings without necessitating set-up time. A machine to accomplish the above was mandatory, and therefore considerable time was spent on its design and development.

After the form of the washing mechanism had been developed we were faced with the problem of making it adjustable so that it could "take" the various sizes of bearings. After a good deal of experimentation, it was determined that by the movement of a lever, the actual washing mechanism could be satisfactorily adjusted for both diameter and width, and that the quantity of the oil could be regulated according to the size of the bearing.

Another important feature was that the bearing inner race was caused to spin as it passed through the washer. For the first half of its passage, the bearing was spun clockwise, and for the second half counter clockwise. As the bearing passed along its track, filtered high pressure flushing oil in large volume was forced through the bearings in the ball race area in such a manner as to cause the spinning action.

Speed Requirements Important

In order to provide a more than adequate flushing action and at the same time maintain proper production, the machine was made long enough to allow a flushing action of approximately one and one-half minutes as the bearings slowly passed through the machine.

This, then, was the machine that solved our cleaning problem. In its use, the turning of two knobs is all that is required to adjust the feeding mechanism for the width and diameter of the bearing. The entire changeover is made in less than one minute, and no tools are required for this purpose. The feed is automatic, taking bearings from a stack. The rate of speed is fixed, thereby maintaining a constant flow of material from the power conveyors in the bearing assembly area through the flushing machine to the power conveyors in the enclosed air conditioned packaging area.

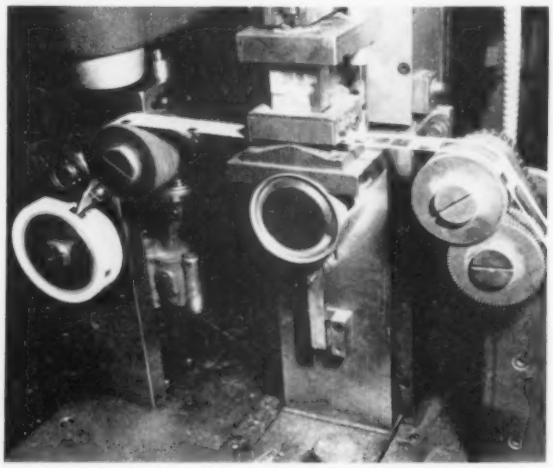
The pre-packaging lubricant and protective coating machine was developed after experiments with several basic ideas and designs of dipping and spraying equipment. These eventually were reduced to two types of dipping machines.

Why dipping, rather than spraying? There were several reasons. For one, it was found that with the spraying process moisture was somehow picked up and homogenized into the lubricant, as sprayed onto the bearing, while under the dip process, any possible moisture which entered the system evaporated from the relatively still vat of material which was constantly maintained at 180 degrees F.

We found, also, that the spray

Paper is cut and in position for wrapping production bearings on this automatic paper cutter.

Labeling machine, showing electric eye and positioning dot on plastic tape.



method had a tendency to oxidize the lubricant and protective coating much more than with the dip method, and we were never sure that every surface, especially between the retainer and balls, was fully protected with the lubricant.

Contamination Protection

We discovered, too, that a few contaminating particles somehow get into the most efficient air conditioned, air filtered rooms. To insure against any of these contaminants getting into the bearings during the dipping process, the equipment was designed so that the bath remained relatively still and free of agitation. This was done so that any contaminating particles which could enter the solution would settle to the bottom of the tank where they could then be filtered from the system.

To keep the solution free of agitation the filtering unit is only operated during off-duty hours. This, of course, was not true with the spray method, which kept the solution with contaminants in constant agitation. And finally, we went to the dip method because we found that we could give the bearings a better protective coating by "bathing" rather than "showering" them.

These, then, are the reasons why we dip rather than spray. For these reasons we are "sold" on this method.

One of these developments in the lubricant and protective coating machine was called the "ferris wheel." In this, the sides of the wheel were placed a little farther apart than the width of a bearing. Angular strips were inserted between the sides in such a way as to form a number of cavities, each large enough to hold one bearing.

A chute, set at an angle, fed the bearings at the horizontal center line into the cavities as the wheel revolved. After the bearings had traveled 180 degrees in and out of the protective, they rolled out by gravity into a container, ready for packaging.

Switch To Star Wheel

The intention was to place a number of "ferris wheels" close together on one axle, each to be fed through a separate chute. Since excess handling would have been necessary in feeding the chutes, however, the design finally was discarded in favor of a star wheel type of machine with rods.

As with the ferris wheel, in the development of the machine a full sized mock-up, containing the salient features, was constructed of wood. It soon became obvious that many desirable features which were absent in the ferris wheel could more easily be incorporated in the star wheel machine with rods. Ease in handling the bearings was an important feature of this machine.

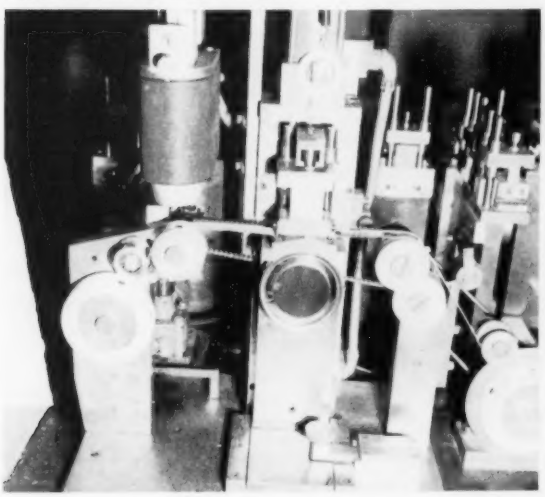
Since the bearings were to be delivered by power conveyors in stacks equal to the height of one package when wrapped, it was considered important that the stacks should not be

Editor's note

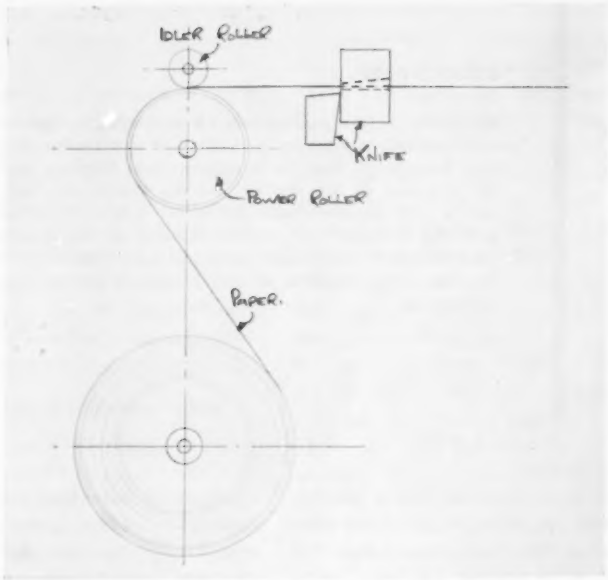
Mr. Booty modestly minimizes his own contribution to the development of bearing packaging; it is a matter of common knowledge that his leadership and thinking sparked the progress of the project. As the details evolved, the ability and dispatch with which his associates came up with the sketches and models leading to the machinery paid tribute to Mr. Booty's skill and coherence in fashioning the broad outlines of this landmark achievement in packaging.

—R. B. H.

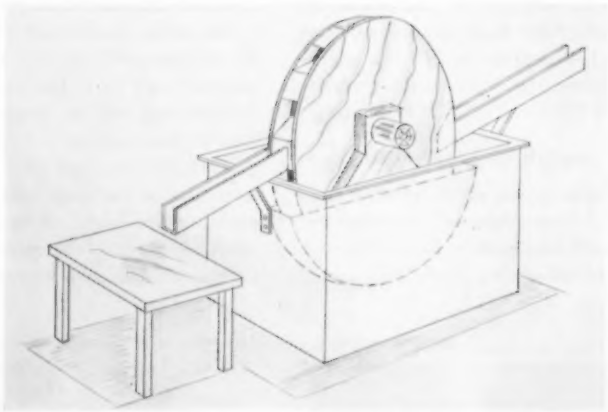
Automatic labeling machine for cans.



Interchangeable can holder for automatic labeling machine.



Schematic view showing paper and safety knife in automatic paper cutter.



Use of full-size wooden mock-ups made possible the initial visualization of the basic ideas leading to the present system of bearing packaging. This is the "ferris wheel" type of greasing machine.

broken to pass through the greasing machine. This dictated the development of a machine using rods on which a whole stack of bearings would be in a hanging position as they passed through the greasing machine.

Another important feature of the machine which was found to be necessary was that of permitting an adequate draining period for the removal from the bearings of excess grease. An intermittent motion was arranged, with a dwell after each rod of bearings left the lubricant.

The lubricant and protective coating machine is air-operated and electrically controlled by means of an electric timing device. To further facilitate the ease of handling, an automatic loading and unloading device was designed to lift the rodded bearings into the loading position in the star wheel slots and to eject the greased bearings onto the loading arms, thus making the operation of the machine entirely automatic.

Cutting Of Paper

A paper cutting machine was developed for coordinated use with the greasing machine. A number of features in this machine were necessary. Safety was a prime consideration, and a good deal of time was spent in developing an entirely safe knife. We determined, also, that the knife must be self-sharpening; that is, must not require adjustments when paper roll sizes were changed; that it must operate faster than the delivery of bearings from the greasing machine; that it must be easy and convenient to operate; that it must be automatic. All of these features were incorporated into this machine, resulting in an efficient adjunct to the packaging system.

The use of sealed fibre cans for

Plastic label tape as used in labeling machine for cans.

there's no taste like home...

PROTECTED BY RIEGEL

SPRUANCE'S OLD FASHIONED BREAD MIX USES DUPLEX BAG LINED WITH A RIEGEL LAMINATED GLASSINE. WEIGHED AND FILLED ON SCOTT NET WEIGHER (U.S. AUTOMATIC BOX MACHINERY CO.)

Protecting the sales-winning qualities of fine products is only one of the many functions of Riegel papers. Saving money is important, too. Riegel does it for you by creating the right combination of the most efficient packaging materials . . . and by "tailor-making" the paper to run and seal at high speeds on your machines. Tell us what you want paper to do for you. Riegel Paper Corporation, P.O. Box 170, Grand Central Sta., New York 17, N. Y.

Riegel **PROTECTIVE PAPERS FOR PACKAGING**

GLASSINES AND GREASEPROOFS
Plain • Waxed • Printed
Lacquer-Coated • Laminated

bearing packaging called for a device to print the designation of contents on the can. Since the fibre can had specially designed art work, it was all the more necessary that the contents imprint should be neat and clear. A semi-automatic printing device, using formed metal printing slugs, was designed.

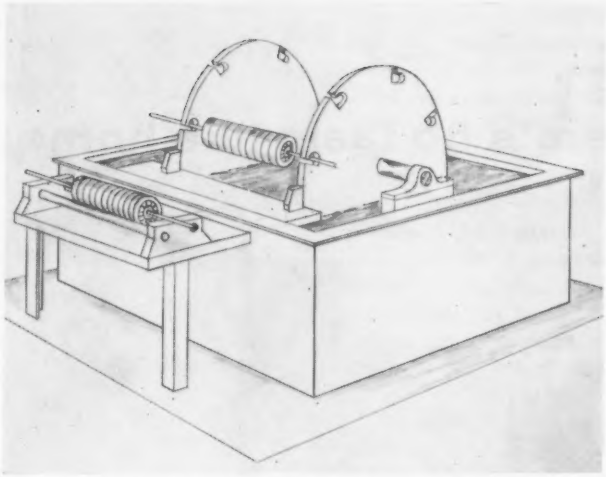
In principle, the can was placed upon a mandrel and the metal printing slug, suitably inked, was rolled together with the can, thereby making the imprint. This method was found wanting: Due to atmospheric conditions, the ink did not at times flow properly, and frequently smudged imprints resulted which were magnified by the fine art work on the can. This method of marking was discarded, therefore, in favor of labeling. For this purpose, an automatic labeling machine was developed.

Labeling Equipment

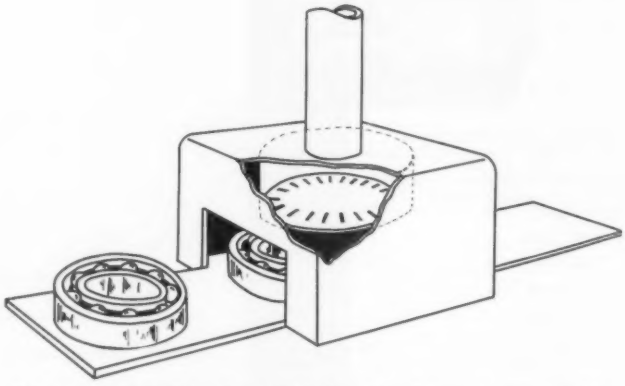
This machine is entirely automatic in its cycle, and is an incorporation of many ideas. Since it was to be used in conjunction with the power conveyor system, it was important that it operate with good speed to prevent a pile-up of material. Speed, therefore, was emphasized in the design of the machine. Set-up time between the various sizes of cans was eliminated. Each can holder is a self-contained unit. In changing over from one can size to another, all that is necessary to do is to slide one can holder out and another in.

The labeling machine uses labels printed on plastic tape, in rolls. The labels are evenly spaced, with a black dot between them. The tape is drawn through the machine, and the black dot positions the label in the die by means of photo-electric eye. The label part of the tape is then punched out and pressed onto the can. The action of placing the can on a holder activates the machine at "lightning speed" in all of its phases.

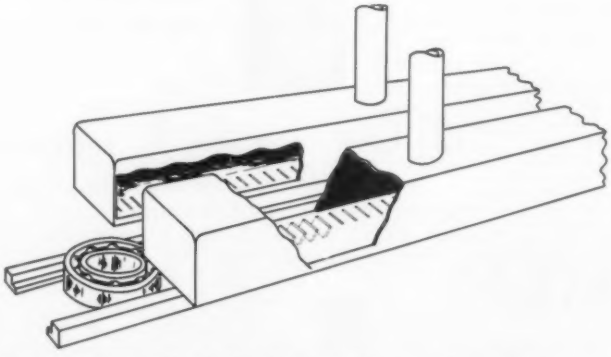
These were a few of the problems we faced, and overcame, in developing a successful ball bearing packaging system. As stated earlier in this article, we do not feel that we have attained perfection. We believe that there is always room for



This wooden mock-up represents the star wheel type of greasing machine which the IH engineers developed, to overcome the limitations which arose in connection with the "ferris wheel" type.



This is the first ball bearing individual washing fixture. Its use was later superseded by the automatic washing machine.



These are the angular oil slots which cause the inner race to spin.

improvements. We know, however, that we have made great strides in packaging a protected, attractively mechanized bearing.

We now have a smooth, almost entirely automatic flow in the preparation of bearings for packaging — in washing them free of impediments, in lubricating for added protection, and in wrapping them in protective paper. The actual packaging also has reached the stage of speed, precision and accuracy.

The system has been developed through a good deal of time-consuming experimentation, and, largely, through the imagination and know-how of those at West Pullman works who engineered the operation.

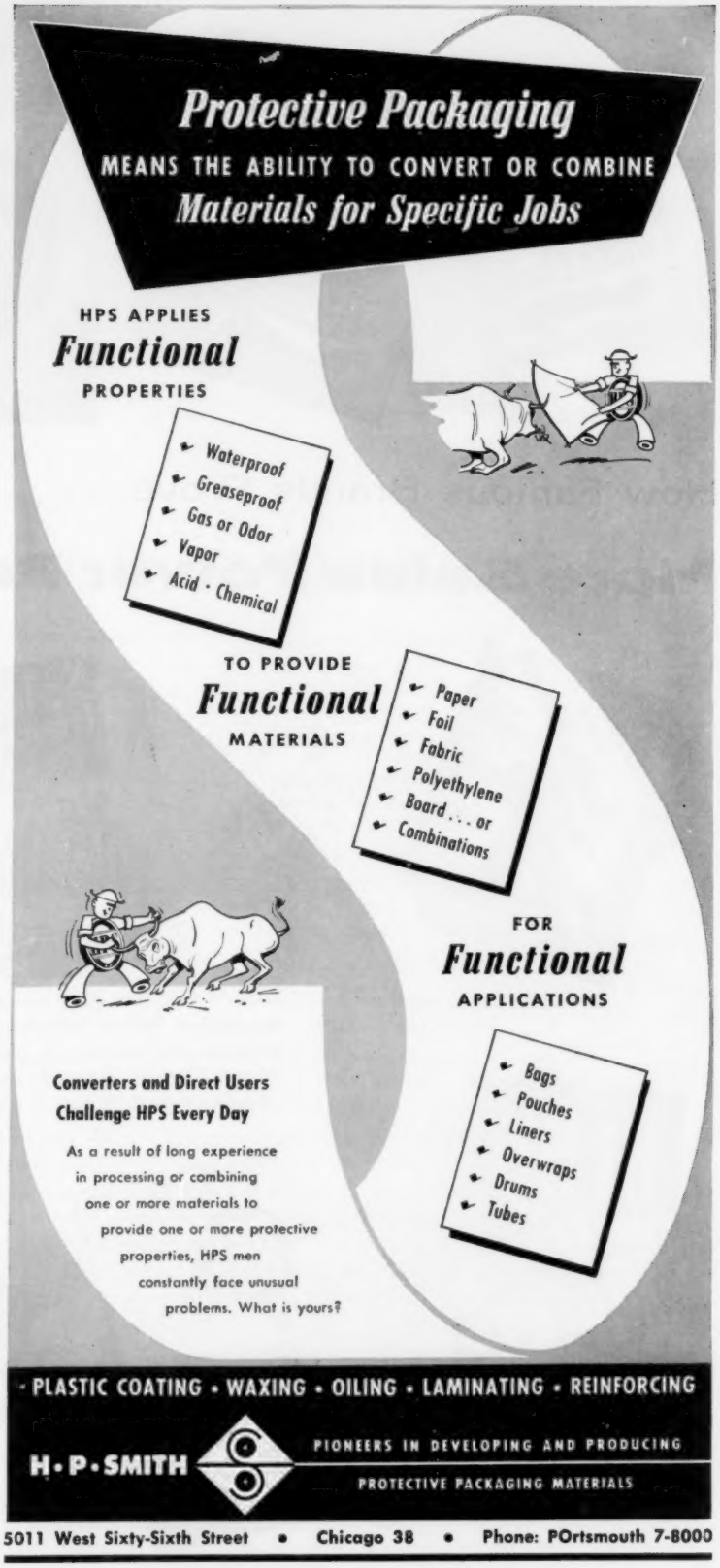
Actual Models Important

An important phase of the development of International Harvester's mechanized bearing packaging operation was its use of models. As fast as the ideas developed, Mr. Booty and his staff obtained full sized mock-up models of wood. Such models provided these advantages:

1. Since they incorporated all of the major mechanical features, they made possible a comparison of alternative machines.

2. Developing models from sketches quickly ascertained whether or not features visualized on paper actually work out.

3. Proposed improvements and adaptations were easy to discuss when there was a full scale model to use as a basis for planning.



For more information circle No. 210 on Reader Service Card

How Famous Brands Prove . . .

More Sales Power Per Package

Remember, Waxed Glassine is more than a wrapper. It billboards your brand, merchandises itself, sells itself. Waxed Glassine is an advertisement with genuine appetite appeal. In fact, *it's an appetizement!*

...with WAXED GLASSINE

Modern packaging, distinctive design, superior protection at minimum cost! Waxed Glassine sparks instant brand recognition, inspires consumer confidence in product freshness and quality!

THE POWER OF WAXED GLASSINE OUTER WRAPS:*

- **More eye appeal** Sparkling clean surface provides perfect background for brilliant, contrasting colors, makes the most of appetitizing illustrations, lets you use entire package for powerful all-over sales-winning designs that prompt purchase by brand! Waxed Glassine comes in many weights, many colors—one just right for the job in mind!
- **Billboards your brand** Every package is a *billboard* in the store and in the home, generating impulse sales and assuring repeat customers with its fresh, inviting look, strong appetite appeal, stand-out brand identification and proven selling features!

INNER AND OUTER WRAPS OF WAXED GLASSINE:

- **Extra flavor protection** Safely seals in all that desirable just-made goodness, keeps customers coming back for more. And satisfied shoppers mean satisfied retailers!
- **Extra freshness protection** Self-sealing Waxed Glassine protects against moisture invasion, maintains freshness and texture best for longer shelf and pantry life. Easier to open, easier to reclose, contents keep fresh and tasty for the life of the package!
- **Extra grease protection** Waxed Glassine wrappers resist penetration by fats, oils, shortenings. No more rancidity problems! Your package stays clean, inviting, colorful!
- **Extra strength** Waxed Glassine passes every rugged test of delivery, in-store and consumer handling! Made stronger to stack better, it cuts down crumbling, breakage, ripped wrappers and returns that shrink your profits!
- **Low cost** Lower basic costs plus constant, dependable supply team up with other Waxed Glassine advantages to produce a package that reaches out and sells! Results: increased *net* profits for you!

Waxed Glassine teams up with the experience, facilities and service of the nation's top converters, to give you modern packaging and production protection that pays off in bigger packaging business, and the job doesn't stop here!

Traffic-stopping *designs*, actual *samples*, proven *sales ideas*, complete *cost sheets* show how Waxed Glassine pays off in better packaging, bigger brand profits! See your Waxed Paper salesman, or write or telephone us direct.

W
PROTECTS FRESHNESS AND FLAVOR
P

Waxed Paper Merchandising Council, Inc. • *38 South Dearborn Street* • *Chicago 3, Illinois* • *Telephone: STate 2-8115*

Using a number of devices and techniques of its own development, W. A. Sheaffer Pen Company combines these with its units of standard machinery to get the most out of its writing fluid bottling lines. This article takes a close look at one of Sheaffer's principal lines, shows how these ingenious innovations contribute to line efficiency.

Plant ingenuity helps step up bottling line production

To facilitate packaging its "Skrip" writing fluids, W. A. Sheaffer Pen Company, Fort Madison, Iowa, uses a number of special devices of its own development. Operated in connection with units of standard packaging machinery, these devices and short-cuts include not only mechanical and operational items but also methods and techniques for packaging line use.

Of the various lines which package these writing fluids in containers ranging from two-ounce to one-gallon capacities, Sheaffer's "No. 1" line typifies the effective use of this company's equipment and procedures. This line handles two-ounce bottles only, operating with ten girls, at line speeds ranging between 126 and 140 containers a minute. Only change-overs take place when switching from one to another of Sheaffer's twelve different colors of writing fluid.

Dumping Two-Tier Cases

Empty glassware for the No. 1 line arrives in two-tier reshipper corrugated boxes holding 48 two-ounce bottles each. A specially-built unit attached to the end of an Island Equipment unscrambler aids the dumping of these double-tier cases. These reach the packaging line with the bottles upside-down, so that when dumped the bottles land on the unscrambler in upright position.

Prior to dumping one of these cases the girl at this station first inserts a piece of wallboard, cut to fit inside the case. This goes inside the flaps on the bottom of the case so that when it is dumped, the lower tier of bottles rests on the board, which in turn rests on the platform of the dumping position device. This platform is sufficiently depressed so that the top tier of bottles is in alignment with the moving platform of the unscrambler itself.

After removing the partitions separating bottles within the tier, the attendant takes a roller-like device (with two handles) and in effect pushes the tier of bottles to the unscrambler. Next, she pushes a pedal which actuates an air cylinder that raises the platform so that the second or lower tier of bottles moves into alignment with the unscrambler. Then, she again takes the "roller" by its handles and moves it (through the guide tracks on each side) so that its bar pushes the bottles onto the unscrambler.

An advantage of having the piece of board on the bottom is that it facilitates quick removal of any glass fragments or broken bottles within a case. Thus, the attendant merely lifts the board to remove it—and dumps any glass fragments on it into a waiting container. In the course of dumping cases the attendant removes the partition and separator members and throws them into scrap receptacles. Empty cases themselves are stacked up on trucks for transfer to the other end of the line.

Cleaning, Delivering Bottles To Filling Equipment

Many of Sheaffer's production short-cuts and developments are the result of long experience with sustained production runs on a single container, such as the two-ounce writing fluid bottle, as well as from the study of newer models of equipment. In this connection the plant technicians found they could avoid the jamming of these particular bottles by having the guide disc or wheel of the unscrambler run ¼-inch off center. This elliptical action is sufficient to prevent jamming of bottles entering the single file conveyor leading away from the unscrambler.

Once in single file these bottles pass through an area hooded and enclosed with plastic and metal—an air cleaning unit of Sheaffer's own development. The air used with this device is filtered in order to be sure there is no moisture in it. There is 45 pounds pressure in the line; the valve at the air cleaner is adjusted manually. At the discharge point there are three pinholes through which the air is forced, going directly into bottles with sufficient force to

blow out any fragments that may be present.

The air cleaner has an exhaust unit which draws away the fragment once the air blows them out of bottles. To catch heavier fragments there is a trap into which they may fall after being exhaust-removed from the bottle cleaning area. Leaving the air cleaner, bottles move on the single file conveyor to the filling equipment.

Preparation For Filling

Following production, the various colors of writing fluid go into elevated storage tanks. These stand sufficiently high above the filling equipment to provide an effective gravity flow. At the far end of the line is a valve board where the fluids transfer to the filling line. To provide flexibility, a hose connects the filler with any of the valves of the storage tanks.

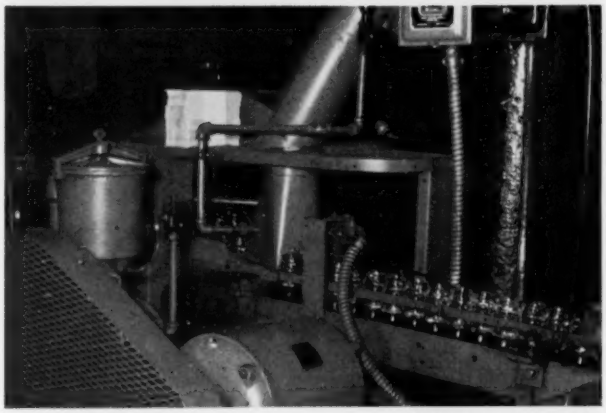
A special problem is wash-out using clear cold water between runs, to be sure there is no contamination of color. After completing a run the crew members first disconnect the hose, letting it drain into a sink, which in turn drains into a sewer. Next, they open the filler so that it may drain thoroughly. Following the draining, they run water through the filler and back to the sink—in a circulating action. When this water is running fairly clear, they stop the circulation and let the water run into the drain.

Now, the hook-up for the next color takes place, after which the attendants run it briefly through the circulating action. Purpose of this is to make sure there are no traces of water in the new color. This, too, is run into the sewer. After this check takes place, the filler is now ready for the run of the new color.

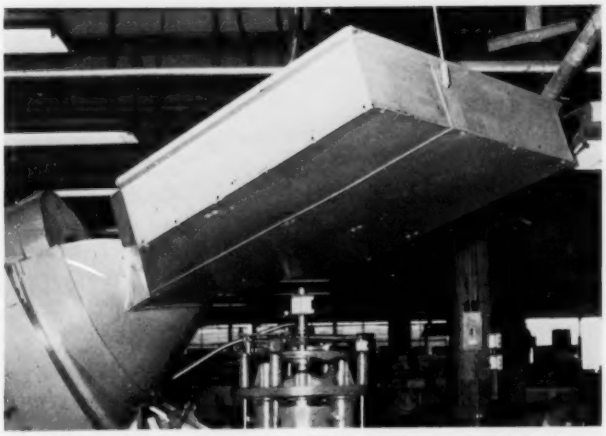
Special Filling Stems

Because of the filling well that in effect cuts off part of the open area at the top of each "Skrip" bottle, the plant has its own innovation on the filling machine: This unit, a 16-head U. S. Bottlers vacuum filler, is equipped with larger filling nozzles or stems than usually found on such equipment. Use of this particular stem is necessary so that the stem

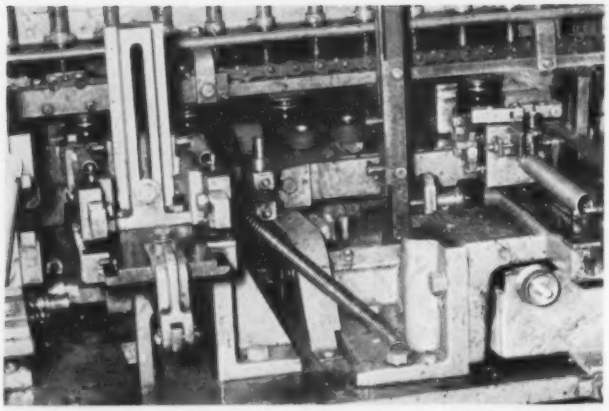
As she pushes her "roller" down its two tracks the rolling action guides empty bottles onto the unscrambler. By using an elevating platform, this device holds the two layers of bottles contained in a double-tier case. After "rolling" away the top tier of bottles the attendant pushes a pedal to raise the platform holding the bottom tier — to a position flush with the unscrambler—then transfers the latter bottles.



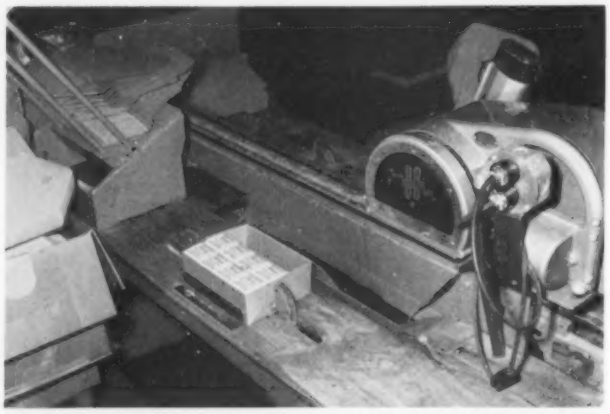
Moving from left to right, empty bottles pass in single file through a Sheaffer air cleaning unit. Jets of air blow into empty bottles to remove foreign fragments, and an exhaust carries them away—to prevent their falling into other bottles. Air line serving the air cleaner has 45 pounds pressure; valve is adjusted manually at cleaner.



To hold three extra cases of caps in addition to the capacity of the hopper normally part of the capper, Sheaffer engineers installed this supplemental hopper. Its contents move readily to the hopper attached to this four-head capper; note the angle of the supplemental hopper.



A spring and two wheel-like rollers work together to eject from the labeler any bottle that is "short", is not capped, or otherwise is not tightly held in labeling position. Although such bottles are of a very rare occurrence, the plant developed this ejection device to prevent an uncapped or short bottle from jamming the labeler or breaking any of its mechanism parts.



Sheaffer's own packing table features specially-developed guides to hold supplies of cartons, and adjustable wood guides to hold a carton while it is being loaded with individual cartons of one bottle each. Barely visible is a die-cut area on carton being held by guides. This opening shows the color of writing fluid individual bottles contain, thus facilitating identification of closed cartons.

This simple guide (developed by plant technicians) serves to control flow of cases on take-way conveyor leading from compression unit to storage point. By changing the position of the guide bar the flow of filled, sealed cases may move down either of two lanes of this conveyor—from which cases are taken for palletizing pending storage and shipment.

may properly force its way into the bottle for filling.

Further, it has the effect of aligning or repositioning the bottle if necessary—so that the stem may enter all the way. Reason for all this: The limitation of the normal bottle opening—imposed by the presence of the filling well.

Capping And Labeling Aids

Filled bottles move through a Pneumatic Scale four-head capper, then through a labeler of the same manufacturer, both of which are standard units. However, the Sheaffer technicians have added a supplementary hopper to the hopper of the capper. This permits the capper to carry a supply of three cases of caps in addition to the normal capacity of the regular hopper.

Principal modification of the capper itself involves using a different action of the star-wheel—in order that the machine may "grab' the bottle while in full motion, to avoid spilling of contents. The wide neck of the writing fluid bottles makes them particularly vulnerable to spilling prior to capping. In connection with the holding of each bottle there is a spring action which facilitates the tight holding of a bottle so that the impact of the moving transfer part is minimized.

To solve the problem of the occasional bottle that has no cap or that is short of the prescribed height standard, the plant has added its own "kick-out" device on the labeler. It uses a pair of rubber rollers or wheels, and a spring. If a bottle has no cap or is short, it does not fit securely in place on the labeler.

As a result, the combined action of the rollers and the spring will force this bottle off the line of travel through the labeler. Although the occurrence of uncapped or dimensionally-off bottles is extremely rare, the plant feels the precaution is worth taking. Otherwise, this bottle could jam the machine, causing breakage of machine parts.

Air-conditioning the filling room made a direct contribution to the labeling operation. Although the plant long ago obtained the proper adhesive

For more information circle No. 212 on Reader Service Card →

Square *RE-USABLE* Metal *Pad-Kaging* Containers

ELIMINATE majority of handling and storage problems

REDUCE shipping weights and cubic footage

These RE-USABLE Metal Pad-Kaging Containers were developed by PETERS-DALTON for the U. S. Armed Forces. They have been approved and are in use for shipping and storing innumerable items.

P-D Containers eliminate the storing of many cumbersome and highly inflammable materials—they also eliminate the excess labor usually required in packaging such items as delicate radar instruments. Older methods caused finished packages to be heavy and bulky. They were susceptible to breakage and penetration to moisture and fungus. They were wasteful because of their excessive use of man-hours and materials, culminated by the eventual scrapping of the expensive packaging. Also, when reshipping was required, old fashioned containers after having once been opened, were seldom satisfactory for adequate repackaging of the materials — endangering them to damage while in transit. These inadequacies and limitations have been virtually eliminated through P-D RE-USABLE Metal Shipping Containers,

* * *

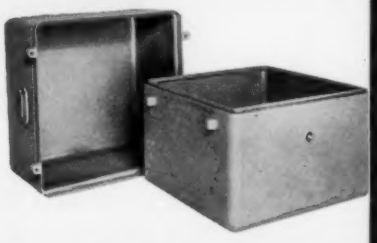
Features include: Lightness: Completed packs weigh far less than older style types. Compactness: The P-D RE-USABLE Metal Containers frequently save more than 50% of cubic footage. Economy: Material and man-hour outlays for packaging are reduced 25%.

Special Features: Containers are equipped with air fill valves to eliminate dangers of fungus or moisture and dial type humidity indicators. Drop handles furnished for containers weighing less than 200 lbs.—heavier containers have been designed for fork truck lifting. Extremely simple to close, only ordinary bolts (4 on the smallest container to 14 on the largest) are required; the simplest of hand tools perform the closing or opening operations. Optional: Pressure relief valves to equalize inside to outside pressures.

* * *

These RE-USABLE Metal Containers were manufactured by PETERS-DALTON for items ranging from aircraft engines, electronic parts, to large A-N containers in all types and sizes for shipping purposes. Complete engineering and manufacturing facilities are at your disposal for design, testing and fabricating. We'll be glad to tell you more—just write, wire or phone.

Materials formerly used in packaging one light military electronic item.



Only two parts to handle.

P-D Re-Usable Container ready to be closed and sealed. Note the simplicity of design.

STEEL SHIPPING CONTAINER DIVISION

P-D Peters-Dalton INC.

A SUBSIDIARY OF DETROIT HARVESTER CO.

17870 Ryan Road • Detroit 12, Michigan

- Hydro-Whirl Paint Spray Booths
- Industrial Washing Equipment
- Drying and Baking Ovens
- Hydro-Whirl Dust Collecting Systems

formulation as well as the correct label paper for its particular use, certain difficulties appeared at times: In periods of high humidity, typical of the Fort Madison climate, the plant was not getting the proper label adhesion. Similarly, when the air was excessively dry, the labels would curl. Now, with control of temperature and humidity, these troubles have disappeared.

Cartoner Modifications

Capped and labeled bottles move to an R. A. Jones automatic cartoner, basically a standard machine except for modifications developed through Sheaffer's specialized experience with the cartoning of two-ounce "Skrip" bottles. Its technicians have moved the arm switch to the end of the cartoner arm, so that the machine stops when the arm leaves its normal operating position.

Also, the equipment now uses longer stems than initially supplied and the bottle-holding unit has been changed; in effect, it has been shaved off, to make it come down to the middle of the bottle so there is no tipping or up-ending of a bottle as it is pushed into a carton. The flap-holding bar is now on a spring so that it rides up and down—and in effect, floats with the cartons.

These changes illustrate the effect of experience with a particular package on a standard machine. Like other modifications made on equipment used on Sheaffer packaging lines, they reveal not only the plant's ability to adjust equipment to production needs but also to minimize the effect of special points of wear and maintenance occasioned by its own particular packaging operation.

Tailored Packing Table

To pack individual two-ounce bottle cartons into chipboard cartons holding twelve individual containers, the Sheaffer organization has come up with its own design of packing table. Special feature of this table is its use of adjustable wood guides—these facilities holding of cartons during the packing operation. Using a Nashua tape dispenser, the packers secure the filled cartons with tape that is both printed and color-coded for the particular color of fluid packaged.

Special features of the chipboard cartons themselves include die-cut windows (to reveal the color, as indicated by an individual carton within the chipboard carton) and glue laps that come all the way to the point where the closing flap enters the carton. These laps are provided full length so that the closing flap does not catch while entering the carton itself.

Line crew members put cartons into corrugated boxes, the same reshippers in which the empty glassware arrived. Once loaded and glued manually, these cases go through a Standard-Knapp compression unit, then pass to a conveyor for temporary storage pending pallet loading. This conveyor holds two rows or lines of cases and has a by-pass or guide of Sheaffer's own development.

This device is pivoted at its far end; its end nearest the discharge point of the compression is moved back and forth as necessary. When one line of cases on the conveyor is filled, this bar-like by-pass serves to direct cases emerging from the compression unit to the other line on the conveyor.

All cases go on pallets 28 by 28 inches. By developing a series of loading patterns for the different items packaged, the plant is able to standardize entirely on this pallet. No other sizes are used.

Line Management Details

To a large degree the ten girls making up the principal packaging line are self-supervised: There is a line bonus in which they share equally. This bonus is determined on a daily basis, supplementing as earned the normal hourly rates of these workers.

Rotation of workers among jobs is by group rather than on the line as a whole. Three girls at the filling end of the line rotate every 20 minutes, and the capper and labeler girls rotate every two hours. Those working at the packing table rotate among themselves. Purpose of this rotation on the line is to break the monotony for the workers, as well as to reduce tension and fatigue.

THE NEW A-B-C *Junior* CASE SEALER

The A-B-C Junior Case Sealer automatically seals corrugated shipping containers in only a fraction of the floor space ordinarily required. Operation is fast—trouble free—economical. A completely new flight chain construction virtually eliminates carton jamming . . . Three semi-automatic models are available to fit most case sizes. Write today for details and floor plans.

A-B-C PACKAGING MACHINE CORP. QUINCY, ILLINOIS

For more information circle No. 213 on Reader Service Card

Here is the second part of a two-part article (the first part of which appeared in our June issue) discussing machinery and procedures for filling and sealing extruded polyethylene bottles and tubes. In this part of the article, Dr. Burton not only follows up his previous discussion of machinery but also reviews a number of practical operating procedures.

Filling and sealing extruded polyethylene containers

By Laurence V. Burton,
Consulting Editor, Package Engineering

BOTTLE BOTTOM SEALING EQUIPMENT

Laboratory Bottle Sealer

A bottle sealer on a laboratory scale is shown in Figure 8. In this unit the filled bottle is inserted into a holder, the bottom disk is placed on top, and the right-hand lever raised to bring the circular radiant heating unit into place. After about 20 seconds it is swung out of place and the patter which is on the left is swung down to complete the sealing operation. Sealing speed is about two per minute. Laboratory models can be obtained from Bradley Container Corporation.

Bank Sealer for Bottles

For bottle sealing, Carbert offers several models. The simplest is a semi-automatic machine that handles the bottles in holders in racks after the manner of the tube sealer, except that the operator must position the bottom disks on the open bottoms before sliding the rack or bank into the sealing position.

Then, as soon as it strikes the stop, the sealing operation starts automatically. In this machine, however, there is still another difference from the tube sealer. The holders for bottles are rotated during the heating cycle by means of a moving belt pressing against their sides so as to produce uniform heating of the circular edge of the bottom that is to be fused.

In this model the heating elements slide forward to a position above the bottles, and retreat at the proper time in the cycle. Next, the patter — or sealing anvil, as Carbert terms it — descends, effects the complete weld, and retreats upward. The rack of sealed bottles in their holders is now pushed toward the rear of the machine to the ejecting station where the bottles are automatically pushed out of the receptacles into a chute or other receiver. Then the entire cycle is repeated.

Production rate of 20 to 30 containers a minute (sealing only) with one operator is obtained. Inspecting, of course, requires another operator. Bottles up to 40 mm x eight inches can be accommodated by this model.

Carbert also manufactures an automatic bottle sealer in which the bottles are in individual holders but not fastened in banks. Here they are free, and advance from the filling to the sealing operation on a conveyor. When the requisite number has accumulated in the sealing machine the cycle starts automatically. A moving belt presses against the sides of the holders to rotate them when they are automatically raised to the heating position.

After rotating under the heater for the necessary time, an air-actuated ram pushes them back in a gang to the patting position. The patter descends, completes the sealing, and then ascends out of the way. Bottles are then automatically ejected, and the empty holders are shoved onto a return conveyor that carries them to the point ahead of the filling station where empty bottles are inserted.

In this model of machine, four gangs or banks of bottles of ten each are handled simultaneously in the heating, patting, ejecting and returning stations. Thus there are 40 bottles in the machine while it is operating. Production rate is 40 containers per minute.

In all the Carbert bank sealers the following services are specified: Electricity at 110 volts, 60 cycles; 60 psi air; and cold water supply.

Horix Machines For Sealing Bottles Only

Horix Manufacturing Company is the most recent entrant into the production of fillers and sealers for extruded polyethylene bottles (but not

tor tubes). The Horix machine is a large rotary, high-production unit of varying length up to about 25 feet, depending on the desired production rate. The higher the maximum production rate specified, the longer the machine must be for reasons given below.

The filling feature is the familiar Horix gravity filler for liquids. Heat for sealing the bottoms is supplied in the straightline position, as shown in Figure 9, by rotating the bottles in their holders under the shielded Calrod radiant heaters. Length of the heating unit must be sufficient to give the necessary amount of heat to the bottoms at the specified maximum production speed. Higher speeds require longer heaters to give the required time-temperature.

The number of bottle holders required on any given Horix machine will also vary in accordance with the production speed specified, and this, in turn, requires adequate space along the conveyor chain for enough operators to work at inserting the empty bottles into the holders or to place the bottom disks onto the filled bottles before sealing to keep the machine busy.

Under normal operating conditions, one experienced girl operator can do either of the preceding jobs at the rate of about 45 containers a minute. Thus, at production rates of 90 a minute, four girls would be needed; two for inserting empty bottles into the holders, and two for placing the bottom disks after the filling operation.

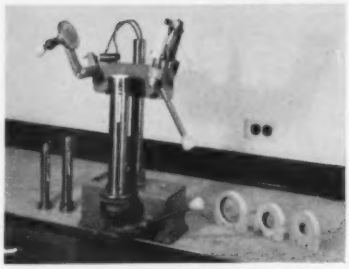
At one plant which I inspected, where a new machine was in its first month of operation, the speed was 120 a minute on a machine built to operate at 180 a minute. There were four inexperienced operators inserting the bottles into holders and three were placing the bottom disks, one was inspecting, and one man was supervising and tending the machine. With more experience it is probable that fewer operators will be needed.

At a designed speed of 100 a minute, the required number of bottle holders will be between 125 and 150; whereas at 180 a minute the number will be between 200 and 225.

Variable speed drives are on each of the three motors on this machine; one ¾-h.p., and two ½-h.p. The drives are used to synchronize the filling, conveying, and bottom sealing speeds as well as increase or decrease the overall speed of the machine. Nevertheless, unless a machine is actually designed for higher speeds, it may not be possible to obtain satisfactory results by speeding-up a smaller machine, because: (a) Sealing time must be sufficient to melt the polyethylene; (b) there may not be room on the conveyors to allow the proper number of persons to work.

Thus, it would appear more feasible to operate a large capacity machine slowly than to try to speed up a machine designed for small capacity. Furthermore, the filling mechanism of a Horix machine is designed for given capacities, and if it were attempted to crowd a filler beyond its maximum designed capacity, the results might not be all that would be desired.

When several sizes of bottles are to be filled and sealed on this machine, special sleeve-inserts are



8. Laboratory model of bottle bottom-sealer with bottle in place ready to receive bottom disk and be sealed. Right hand lever brings heater into position to melt the edges; left hand lever brings patter into position to press the molten bead. Objects at left are inserts to accommodate smaller bottles; those at right are corresponding sizes of heating units.

available to accommodate the sizes smaller than the maximum for which the machine was designed.

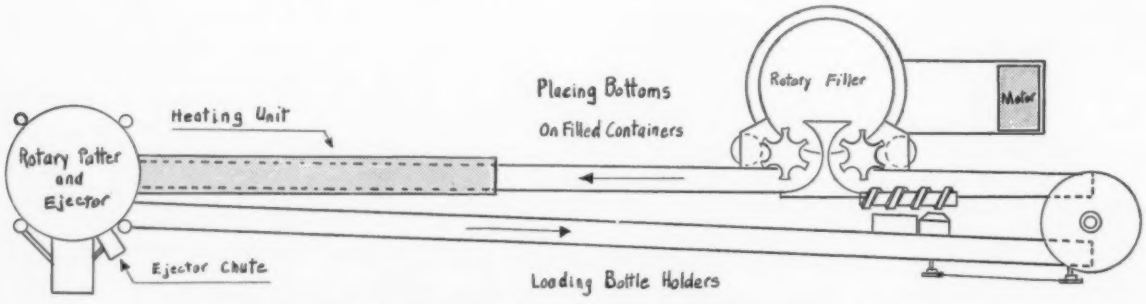
Like all machines for filling and sealing extruded polyethylene bottles and tubes, this machine handles them bottom-end up.

Services required are electricity only, except, in the special case where compressed air is needed for blow-off or "clean-out" of filling nozzles operating on viscous, stringy liquids. No water for cooling is needed. Patters are air cooled.

Ejection of filled and sealed bottles is automatic. Bottles fall onto the inspection belt, and thence proceed to the packers.

FILLING OPERATIONS

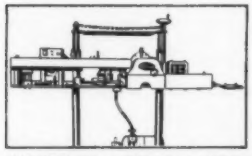
Certain machines (Carbert and Saga) can be purchased with filling equipment as an optional feature. Some models of Carbert machines have no filling feature. Horix and Kalix-Dupuy machines have the filling equipment built in. Since there



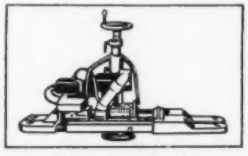
9. Schematic drawing of Horix bottle filler and sealer showing principal features of equipment except two half-h.p. motors to drive conveyors and patters. Note location of operators for inserting empty bottles and positioning bottom disks.

CONTINUOUS BAND SEALER: best heavy duty unit for sealing plastic bags—polyethylene, vinyl, pliofilm, saran (with labels) Doughboy ROTARY SEALERS are ideal for cellophane, glassine, foils, laminates. Inking or embossing coders and hole punch are optional.

World's most complete line of Heat Sealers!



AUTOMATIC SEALER - LABELER folds and seals cellophane bag tops, then applies thermoplastic label over seal to give crimp-free appearance.

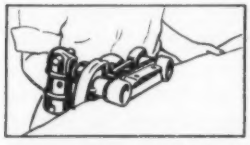


UTILITY SEALER offers big machine advantages for intermediate packaging. Models available for both polyethylene and cellophane.

Doughboy offers you the most complete line of heat sealing machinery available to do a better, more efficient job of packaging. Shown here are just a few of the Doughboy units which are *engineered* for faster and more flexible packaging.

Doughboy units today are cutting costs for manufacturers all across America and in many countries abroad. Why not let our engineers work with you on *your* heat sealing problems?

Send coupon for full information.



POWER HAND SEALER, available in 3 models, is a versatile unit for both portable and bench use.

DOUBLE BELT CONVEYOR is designed for heavy duty. Adjustable belt permits handling all bag sizes. Doughboy makes single, double or triple belt conveyors for every packaging operation.

Doughboy

100 YEARS OLD THIS YEAR

VISIT OUR BOOTH NO. 310

Packaging Machinery and Materials handling Exposition, Cleveland, Ohio – September 11-14.

DOUGHBOY INDUSTRIES, INC.

MECHANICAL DIVISION 3, NEW RICHMOND, WISC.

Please send me complete details about the Doughboy Units I have checked.

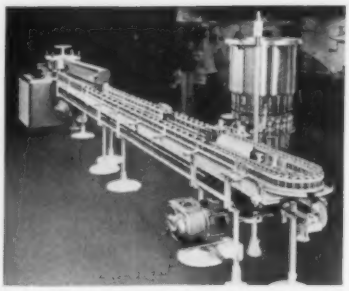
- ☐ Continuous Band Sealer
- ☐ Automatic Sealer-Labeler
- ☐ Rotary Heat Sealers
- ☐ Power Hand Sealers
- ☐ Utility Sealer
- ☐ Doughboy Belt Conveyors

NAME_____ TITLE_____

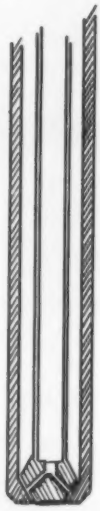
COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____



10. Horix bottle filler and sealer.



11. Special arrangement of the blow-off on diving nozzle to insure clean fill and avoid contamination of sealing surface with product being packaged.

12. Saga eleven-station tube sealer with Popper vial-filler for filling and sealing very small tubes.

is nothing unusual about filling extruded polyethylene tubes or bottles, the following discussion of filling is limited to its application to this particular type of container and the need to avoid contamination of the surfaces to be welded by the product.

Basic Principles Employed In Filling And Sealing

Filling of extruded polyethylene tubes and bottles is customarily done at the bottom of the inverted open-end container, after which the tubes are crimp-sealed or the bottom disks are sealed onto the bottles. Although this is the general practice there are exceptions where the purchaser of the container buys the completed bottles and fills through the neck, followed by closing with a screw cap made of molded polyethylene. This is done apparently to utilize existing filling equipment.

Several makes of tube filling machines are on the market, such as Arenco, Colton, Mateer, Popper — to name a few of the older makes — and the Saga, to mention the latest entrant into the tube-filling field. Horix utilizes a combination gravity filler and sealer for bottles but not for tubes. Since many of the products packaged in extruded polyethylene bottles or tubes are creamy or viscous materials, the use of pressure or forced filling by piston pumps is common. Where the product is a limpid liquid or one of very low viscosity, it is possible to use gravity fill. One user has found the Mateer filler is very successful for an exceptionally heavy product.

In filling either polyethylene tubes or bottles, there is need to do a clean job and to avoid all contamination of the heat-sealing surfaces by the product being filled. This precaution is indispensable, for nearly all substances that may contaminate the sealing surface will prevent the formation of a tight weld, and lead to rejects on the inspection belt whenever it occurs. One user of this type of container informs me that "contamination" of the sealing surfaces by his product does not impair the sealing properties of polyethylene, except for the fact that the latent heat of evaporation of the product when the tube is under the heater may lower the temperature to the point where it does not stick well but, with a longer heating cycle, the polyethylene seals as well as ever.

He adds, however, that spilling or contaminating must be avoided at all costs for a wholly different reason. When his product, a toiletry item, dries, it forms an abrasive powder that can quickly ruin machine parts once it gets into them.

Contamination is usually avoided by proper adjustment of the location of the diving nozzle, and by the usual method of filling from the bottom of the container as the diving nozzle ascends. The location of the diving nozzle with respect to the center of the tube is best when there is a slight eccentricity. Experience shows that there is less drip from the nozzle under this condition than when it is concentrically located.

Two methods of preventing contamination have been successfully used in addition to the proper adjustments of the filling machine itself.

(a) Use of a blow-off on the cut-off valve. This is a puff of compressed air of about ¼ second duration. (1) It has been successfully used at LePage, Inc., Gloucester, Massachusetts, on the filling of glues into Bracon tubes. Originally the air was at 12 lb. per sq. in. from the same line that supplied air to the cooling stations on a Saga filler-sealer. The pressure was too high and caused spattering. When a separate line with six-pound air was provided for the blow-off, it operated satisfactorily.

(b) On a much different product, a stiff creamy ointment, at Johnson & Johnson, Cranford, New Jersey, the design of the diving nozzle was reworked so that, instead of the location of the cut-off valve about three inches above the discharge end, it was changed so that the valve was as close to the bottom as it was possible to put it.

This change gave better results but, until the blow-off tube was changed so that the compressed air no longer emerged from a single hole in the center, the operation was not perfect.

The center hole was replaced by a series of tiny holes directed at an angle at 45 degrees from the axis and located so that the valve seat was blown clear, as shown in Figure 11. (This is a common arrangement on many makes of tube fillers.) The plant engineer of J & J, did not, however, find that six-pound per sq. in. air was critical, as was found at LePage, Inc.

GENERAL OPERATING PROCEDURES

Inserting Tubes Into Holders

Tubes are manually inserted into the holders, receptacles or sleeves, as they are variously called. Proper orientation of the tube so that the printing on the face label will parallel the seal is the job of the operator. On fully automatic tube machines the next operation is tamping or pressing down the tube into its holder so that the shoulder of the tube hits the bottom of the receptacle and gives a uniform height for subsequent operations. The tamper or push-down is usually a spring-loaded cam-actuated device. It is important that the tube rest on its shoulder rather than on its cap.

Heat Sealing Of Tubes

To make a seal on a tube, the 3/16-inch portion of exposed tube is exposed to the source of radiant heat — a metal-sheathed electrical heating unit known as a Calrod — located about ⅛ to ¼ inch from the polyethylene to be welded. The Calrod operates at 1300 degrees F, a cherry-red heat. Both time and temperature of heating are involved.

Factors to be considered are: Distance of the heating elements from the polyethylene, speed of operation of the machine (which governs the time of exposure), the thickness of the tube wall, its nature (pigmented or non-pigmented), the size of the tube to be sealed, exposure of the machine to cold drafts, particularly in winter, and fluctuating line voltage.

A definite number of calories of heat are needed to melt the exposed polyethylene to the desired fluidity before the seal can be made. These calories are provided by radiant heat. Radiation intercepted by the clamped strip of polyethylene tube diminishes according to the square of the distances from the heat source. Hence any variation in the distance between the heater and the object being heated, however small it may be, can greatly alter the heating effect.

If the machine-setting is satisfactory for one sort of tube of a given thickness of wall and a heavier walled tube is then used, the chances are that the proper welding temperature will not be attained at the same machine speed. And, conversely, a change to a thinner-walled tube may result in a temperature too high for a satisfactory weld or seal. Exposure of more or less of the tube above the clamping jaws can have the same effect.

Automatic Temperature Control

Most of the newer sealing machines are equipped with a temperature regulating device known as a Variac. This is a voltage regulator in the heater circuit. The Variac can be set manually by turning a knob and it will control the temperature fairly closely.

The Variac permits adjusting the temperature within certain limits, but its range cannot permit compensating for every time-temperature problem. If the speed of the machine is increased, either higher heating temperature or a longer heating cycle is needed.

If the speed is reduced the temperature must be lowered. Furthermore, thicker tubes require more heat than thinner tubes. Large diameter tubes take more heat to melt their tops than small diameter tubes, and hence need a higher temperature for a given machine speed.

If cold air in winter is allowed to blow against the heating unit (e.g., on a machine located close to a leaky window), more heat is required, although this problem is easily solved by providing a small shield on the heater housing.

The matter of proper heating is not entirely limited to the preceding variables. The melt index of the various types of polyethylene and the pigmentations of the polyethylene will vary, which may require compensation in the heat supply.

Part of the compensation for the several preceding variables can be accomplished by the control of the voltage by adjusting the Variac. Some of the compensation can be accomplished by changing the machine speed, although speed-changes are made more frequently to accommodate the filling operation than to aid in securing a more satisfactory temperature control. Large tubes may require a little more filling time than small tubes.

The Calrod heating units have a power consumption of about 30 watts per liner inch. Machines for sealing tube bottoms have a single unit, whereas machines for sealing bottle bottoms have two parallel heating units, the lengths of which may be as much as 48 inches (39 inches effective) in the Horix, or as short as 20 inches on a Carbert. If the Variac is adjusted to put more resistance into the circuit, the amperage must diminish and consequently the temperature must fall. This is in accordance with Ohm's Law.

$$E = I \times R$$

where E = volts
I = amperes
R = ohms (resistance)

If E, line voltage, remains constant, as R increases I must diminish.

Heat Sealing Of Bottle Bottoms

Sealing the bottoms onto extruded polyethylene bottles involves the same principles as tube sealing plus two more factors:

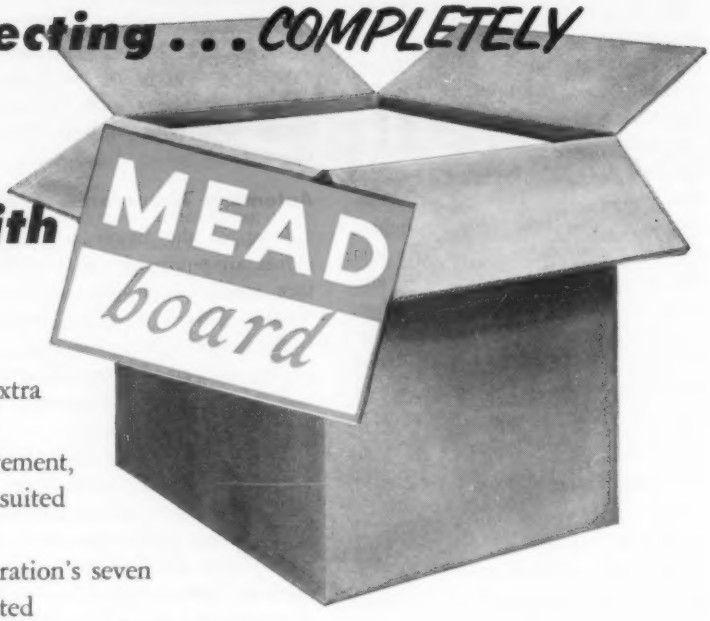
(1) the bottles are rotated so that the point of fusion of the exposed side wall and the disk that is to form the bottom is in close proximity to the heating elements, usually about ¼ inch at the nearest points.

(2) The pressure required to effect a firm seal of the molten polyethylene is given by a spring-loaded circular metal plate which presses against the bottom as it emerges from the heating zone. This plate is commonly called a patter, and the operation is called patting. Pressure applied here is fairly light, being usually about 10 to 15 lbs.

If it's worth making

It's worth protecting . . . COMPLETELY

Safeguard it with



It costs no more to provide the extra protection of Mead paperboard. Whatever your packaging requirement, there's a Mead board especially suited to do the job, and with ample safety margin. The Mead Corporation's seven board mills are strategically located where they grow their own strong-fiber pulpwood. Their personnel knows how to make the best. And Mead specialists are trained to adapt the product to every conceivable need. Kraft linerboard and .009 Chestnut semi-chemical corrugating medium, available in all trims and weights, are the basis of dependable product protection. Let our nearest office discuss your needs.

NEW! *HH Chestnut Semi-chemical Corrugating Medium withstands constant exposure to high humidity. Odorless. Its extra rigidity is the answer to your requirements for higher top-to-bottom, end-to-end compression in your containers.*

Mead Board is a standard product of

THE MEAD CORPORATION

Sold direct by MEAD BOARD SALES, INC., 3347 Madison Road, Cincinnati 9, Ohio

CHICAGO 30, ILLINOIS . . . 6124 N. Milwaukee Avenue
NEWARK 2, NEW JERSEY . . . 10 Commerce Court
DETROIT 35, MICHIGAN . . . 18045 James Couzens Highway
BOSTON 10, MASSACHUSETTS . . . 43 Leon Street
LYNCHBURG 2, VIRGINIA . . . River Road

For more information circle No. 215 on Reader Service Card

Comments By An Observer

1. A perfect machine set-up is needed for efficient low-cost production.

2. If there are slight variations in tube lengths the set-ups should be for the *average* length. (Some users state that it should be for slightly below the *average* length.) Never base the set-up on the length of a single tube. The one you pick might not be of average length. In my opinion, at least 20 tubes should be measured when setting up the machine.

3. Don't guess at the proper length of the tube to be exposed above the clamping jaws. Use a gauge. While 3/16 inch is considered proper, it may be found by actual experience that 5/32 inch or perhaps 15/64 inch exposure operates more satisfactorily. Make sure that each tube holder is adjusted to the correct uniform height.

4. The amount of radiant heat intercepted by the portion of the exposed tube above the clamping jaws will vary inversely as the square of the distance between the Calrod heaters and the clamped tube. Thus, if ⅛ inch is proper, now consider how any variations of the distance can affect the temperature of the melting bead. The mathematical explanation of the problem is better expressed in millimeters than in common fractions of an inch.

1 inch = 25.4 mm
⅛" = 25.4 mm ÷ 8
= 3.17 mm

If the distance is somehow reduced to, say, 3 mm the percentage increase in heat absorbed at 3.17 mm is calculated as follows:

$$\frac{(3.17 \times 3.17) \times 100 - 100}{3 \times 3} = 10$$

per cent increase

On the other hand, if the distance were somehow increased to, say, 4 mm, the percentage decrease in intercepted radiation is calculated as follows:

$$\frac{100 - (3.17 \times 3.17) \times 100}{4 \times 4} = 37.5$$

per cent decrease

This means that theoretically the movement of the clamped portion of the polyethylene tube by less than a millimeter from the heat source under the foregoing set of conditions will reduce the heating effect by more than one-third. Thus, a variation of distance by an amount probably too small to be seen accurately can mean a considerable variation in temperature of the small amount of material exposed to the heat.

Measurement of the small distances when the machine is cold may not give a true figure for the distances when the machine is hot and operating. Indeed, I would expect that thermal expansion might cause the Calrod to distort slightly and change the distances — perhaps not uniformly — throughout the length of the heating zone. And, frankly, I do not yet know how to measure the distance between the Calrod and the melting polyethylene when the rod is red hot unless it be done by an optical system.

If my conjecture about the effect of distance is correct, then the first thing to do to compensate for variations of distance is to modify the temperature by changing the setting of the Variac.

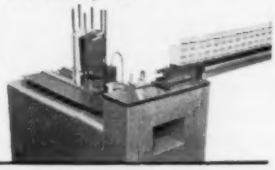
5. If the Variac is set at its extreme position — either high or low — it is impossible to get adequate control. The remedy is either to run the machine slower, or, better yet, install heating units of proper heating capacity.

6. When a machine is running steadily it will soon be in balance as to heat input and output. If the machine is stopped longer than about a minute without shutting off the current to the heater, it appears to be inevitable that some parts of it will become hotter than others during the period of stoppage. Many machine operators are of the opinion, however, that shutting off the heat is unnecessary during a brief stoppage. Maybe not, but it is something to be studied, especially if the stoppage is of 10 to 20 minutes duration.

7. Some operators forget to lubricate their machines regularly. Yet oil is much cheaper than machine parts or breakdowns.

Unitized Reverse-Tuck Cartoning Equipment

Model 54 CONVEY-O-MAT Carton Set-up Unit

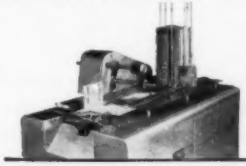


For continuous packaging production combined with versatility investigate the BIVANS line of packaging machines.

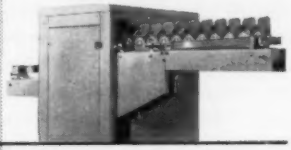
Send us your cartons for engineering analysis.

Model 50 TUCK-O-MAT Carton Set-up Unit

Model 321 PRINTER-CODER Attachment



Model 518 CARTON-CLOSER UNIT



BIVANS, Inc. 2431 Dallas Street Los Angeles 31, California

See us at booth 325 at the Packaging Machinery Manufacturers Exposition in Cleveland, Sept. 11, 12, 13 and 14.

DIST. BY NEW JERSEY MACHINE CORP., HOBOKEN, CINCINNATI, CHICAGO, LOS ANGELES

Charles J. Zusi has been associated with Container Laboratories Inc. some 15 years. Prior thereto, he was a research engineer for Hinde & Dauch in Canada for 13 years. Mr. Zusi, a civil engineer, is a graduate of Cooper Union for the Advancement of Science and Art. He is a member of Packaging Institute, Society of Industrial Packaging and Materials Handling Engineers, Technical Association of the Pulp and Paper Industry, and American Society of Civil Engineers. He has served actively on committees within these organizations.

Our last issue carried an article by M. J. Harnist, a widely known container quality control specialist, suggesting the "center-to-center of scores" method as being the best way to measure a corrugated box. In this article, a noted container testing expert urges another viewpoint—that users give more latitude to box suppliers in determining scoring allowances. Also, Mr. Zusi recommends close attention to inside dimensions.

Another way to measure a corrugated box

By Charles J. Zusi,
President,
Container Laboratories,
Chicago

In his article, "How to measure a corrugated box correctly", Milton J. Harnist demonstrates a thorough knowledge of that subject. However, his point of view is consistently (and justifiably) that of an inspector. Various interested observers, for example, the box designer, might place emphasis on other points, and thus be led to a somewhat different conclusion.

Since the function of a container is to carry its contents, and it is reasonable to assume that it will be most efficient when it fits the contents, with proper allowances where needed, the size of the contents will determine the size of the container. Although some contents are amorphous, the foregoing general statement still is true.

The designer determines the desired size and shape of the contents, including blocking, cushioning, allowances, outage, etc. This fixes the required free inside space in the container, that is, its inside dimensions. The inside dimensions, therefore, constitute one of the basic facts to be supplied to the maker of the container. The user of the box wants it to have the inside dimensions specified by the designer.

It is obvious that, since the box must go around the contents and the box material has thickness, the length of the box blank must be greater than the perimeter of the contents, or the inside dimensions of the container. The difference between these measurements is the sum of the appropriate scoring allowances. The significant fact is that not all fibreboard box manufacturers use the same scoring allowances for what appear on the surface to be the same conditions.

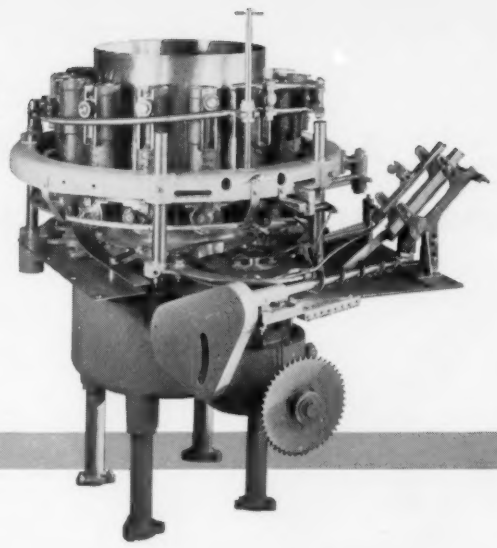
A study made a few years ago disclosed an interesting situation. Among a large group of corrugated box manufacturers about one-half used a panel scoring allowance (length and width) of 3/16″ on A-flute while the other half used 1/4″ allowance; all but three used 1/8″ on B-flute and all but two used 3/16″ on C-flute. Incidentally, practically every manufacturer gave his allowances to the nearest 1/16th inch.

On the hinge or reverse scores (depth), the A-flute allowances were divided among 3/8″, 7/16″ and 1/2″; some used 1/4″ on B-flute and the remainder 5/16″, while nearly all used 3/8″ for C-flute. All of these differences occurred on single-wall, 200-test certificate boxes. For heavier materials and for double-wall boards, the situation is considerably more complicated.

Should it be concluded from these facts that corrugated box manufacturers are a bunch of stubborn individualists or that, perhaps, they do not know their business? Far from it. These people know that scoring wheel profiles have various shapes; that they must be adjusted differently for different overall thicknesses of combined board; that different materials do not act the same way. They try

(Continued on Page 48)

- ★ *Armour & Co.*
- ★ *H. J. Heinz Co.*
- ★ *Kingan & Co.*
- ★ *Beech Nut Packing Co.*
- ★ *Hershey Chocolate Corporation*
- ★ *White Rock Bottling Co.*
- ★ *Campbell Soup Co.*
- ★ *Libby's*
- ★ *Quaker Oats Co.*
- ★ *Minute Maid*
- ★ *Gerber's*
- ★ *Duffy-Mott Co.*
- ★ *Hawaiian Pineapple Co.*
- ★ *Borden Co.*
- ★ *Snow Crop*
- ★ *John Morrell & Co.*
- ★ *Swift & Co.*



TESTED and PROVED

by critical users . . . by time . . . by varied applications

Pfaudler Piston Fillers . . . cleanly handle up to 800 cans per minute (sometimes up to 1000, depending on product). There isn't a machine on the market that can match its over-all performance. Ask us to prove it.

Just look at the big names in the food packing business using Pfaudler Piston Fillers. They offer solid evidence of user satisfaction.

Then add the tests of time, and varied applications under all sorts of speed requirements. The record speaks for itself.

What you can gain by using Pfaudler Piston Fillers!

Basically Pfaudler Piston Fillers are "foolproof." Note the design of valves and pistons (Fig. 1). Very simple. Very precise. Accurate to within $\pm 1/10$ oz. Very easy to clean—no tools required to remove pistons or valves. You save time and money.

Spillage of product during filling is prevented by a no-can-no-fill device. Product waste is nil. Right at the start *you get a clean package.*

Adjustment of fill is made at one point, even while filler is running. *You save time, save product, keep up your production rate.*

Bearings and gears are automatically lubricated. Only three points on the filler are hand lubricated. So, because cleaning is simple, *maintenance is no problem.*

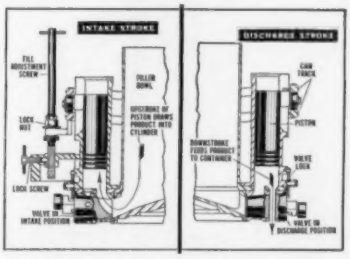


Fig. 1. These diagrams show position of operating parts of valve during intake and discharge strokes. Action is positive, volume of product precise.

If you are filling anything from liquids to semi-solids, it will certainly pay you to look over this line of fillers. To help you, we will be glad to send you our Booklet 911. The coupon is for your convenience.

THE PFAUDLER CO., Dept. PE-7, Rochester, N. Y.

Please send me Bulletin 911, "Rotary Piston Fillers."

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State____

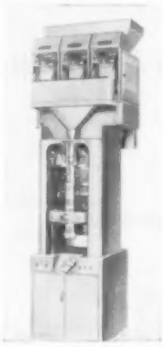
THE PFAUDLER CO., ROCHESTER 3, N. Y.

Announcements of machinery and products

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card — we pay the postage.

Automatic Packaging Unit

Triangle Package Machinery Co. announces its "Elec-Tri-Flex" unit that (using roll stock) forms, fills and



seals up to 60 pillow style single or double wall bags a minute. While it normally uses net weight scales it may be equipped for volumetric or auger feed, or for hand loading. Triangle says that a complete changeover of product and film size takes from ten to 20 minutes. The scales on this equipment may be fed either from overhead or from a waist-high floor type hopper. Circle No. 1.

Clear Plastic Film

Minnesota Mining and Manufacturing Co. reports development of a new plastic film that has the strength and resistance to oil found in polyester films and the heat sealing and resistance to corrosive fluids found in polyethylene. It heat seals at 275 to 350 degrees F at ten to 60 psi jaw pressure with one-half to two seconds dwell time. This film is four and a half mils thick, is available in widths to 22 inches, and has a tensile strength in excess of 15 pounds per inch of width, according to Minnesota Mining. It is chemically inert and nontoxic. Circle No. 2.

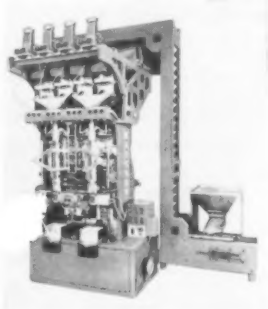
Inert Gas Generator

W. F. & John Barnes Co. announces a new inert gas generator designed to provide an oxygen-free, protective atmosphere for processing and packaging food and related products. A

major feature is its control device to assure constant, efficient combustion. Changing the pressure above the orifice (for the flow of fuel), using two pressure regulators arranged in series, contributes to the elimination of supply line fluctuations. There is a temperature controller to maintain constant air temperature and furnish a constant weight of air to the burner. Circle No. 3.

Automatic Packaging Unit

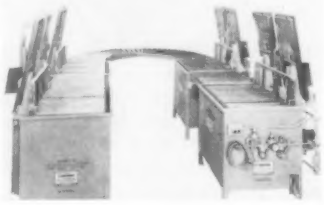
Hayssen Manufacturing Co. says that its new "Compak" machine is equipped with the company's net



weight scale feed and has an all-mechanical counterbalance construction. Forming packages directly from roll stock, this machine fills, hermetically seals, and provides a straight cut-off in each cycle. According to Hayssen, the machine is also available with auger, volumetric or pump feeds, and handles all heat sealing materials and their laminations. Circle No. 4.

Conveyorized Dipping Machinery

D. C. Cooper Co. announces development of its automatic, conveyorized machine for metal cleaning and



dipping, such as in preparation for preservation and packaging under specification MIL-P-116B. There is a loading rack positioned so that parts are loaded at a 36-inch height. Pressing a button causes the loaded platform to move to the bottom of the tank, after which it rises automatically following the agitation cycle. Units are available heated or unheated. They have fusible link closing devices as well as "dead man's" controls—to facilitate closing in case of fire. Circle No. 5.

Single Service Liquid Package

Cheslam Corp. announces a new package for cream and similar products, a patented "controlled flow" or "S-spout" pouch, made of an extrusion lamination of polyethylene and cellophane. The channel of the controlled spout is opened by tearing the partly slit portion across the top to expose the mouth. Slight pressure forces the liquid through the channel, out in a narrow stream. Flow stops when pressure is released — even though the pouch remains in downward position. Several manufacturers have machinery to form, fill and seal these packages in capacities from one-quarter

(Continued on Page 40)

Behind today's best sellers . . . .

THE CUSTOM ENGINEERING,

THE DEPENDABILITY,

THE ECONOMY OF

Packomatic

AUTOMATIC PACKAGING

(T. M. Reg. U. S. Pat. Off.)

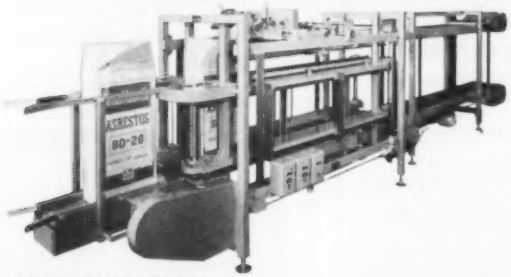
Better packaging means lower production costs and increased volume.

From Quaker Oats Company plants, ten 5-lb. bags of Aunt Jemima flour are shipped to grocers' shelves in paper shipping bales. New Packomatic Bale Sealers automatically fold, glue, position flaps and seal the tough bales securely.

Manufacturers of virtually every bulk or pre-packaged product should consider the safety and economy of the bale for shipping, and the Packomatic Bale Sealer for automatic sealing. Customized to your needs, of course.

But, whatever your package, whatever your budget, there's a particular Packomatic machine for complete automation or for "speed up" of any single operation.

Let a Packomatic representative review your present packaging methods.



WRITE FOR FOLDER 3-11

PACKOMATIC FULLY AUTOMATIC BALE SEALER

Packomatic Bale Sealers, originally designed to handle, glue and seal paper shipping bales up to 100 lbs. weight, can be customized by our engineers for a combination of weights and sizes within these dimensions:

RANGE: *Length:* 9″ to 18″ in 6″ increments
Width: 5″ to 9½″ in 2″ increments
Height: 14″ to 40″ in 6″ increments

SPEED: The regular Bale Sealer is designed for speeds up to 1000 bales per hour.

CONSTRUCTION: This machine is a heavy-duty machine featuring sturdy, square tubular framework, heavy-duty chains, oversize bearings, heavy-duty reduction units and positive safety stop devices.

Other PACKOMATIC machines include the Bale Sealer — Case Sealers — Opener-Loaders — Case Imprinters — Telescoping Volumetric Filler — Packer-Gluers. Units available, semi-automatic or fully-automatic depending on your needs.

Over 50 years' experience in Customized Packaging Equipment

J. L. FERGUSON COMPANY Joliet, Illinois

New York, Chicago, Cleveland, Boston, Tampa, Baltimore, Portland, Denver, Los Angeles, San Francisco, Seattle, New Orleans, Louisville, Kansas City and all principal Canadian cities.

But we CAMPBELL WRAP a *WHALE* of a lot of products!

AT A WHALE OF SPEED — with most users reporting from 100 to 300 single or multiple product package units *per minute!*

A WHALE OF SHAPES AND SUBSTANCES — are Campbell Wrapped too, whether the product be regular or irregular in shape — hard, soft, crisp or fragile in quality. Automatic, continuous rotary operation "float" wraps *without* damage or breakage.

A WHALE OF MATERIALS — Such as papers, cellophane, polyethylene, foils and all types of the newest plastic film wraps can be used.

A WHALE OF SAVINGS — are effected, too, with elimination of trays or stiffeners, *unless desired* — minimum wrap fold-over at seams —and *one person* operation.

A WHALE OF SEALS — By gluing, crimping or heat sealing with ends flared, turned under or diamond folded. VACUUM SEALING now also available. Automatic feeds and deliveries of all types. Write for complete information.

Speeds production
— wraps up to 300 units per minute
Cuts labor costs
— simplified one person operation
Saves materials
— uses no boards or stiffeners *unless desired*

Write
For full color brochure telling about the many models of Campbell Wrappers.

New York office 55 West 42nd St.

Campbell WRAPPER
HUDSON-SHARP MACHINE CO. • GREEN BAY, WIS.
Manufacturers of Aniline and Gravure Presses, Folders, Interfolders, Laminators, Waxers, Embossers, Slitters, Sheeters, Roll Winders, Packaging Machines, Creepers and Tissue Converting Units.

(Continued from Page 38)

ounce to three ounces, according to Cheslam. Circle No. 6.

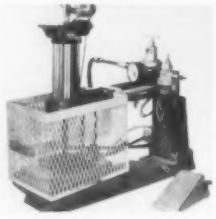
Reinforced Sack Construction

Bemis Bro. Bag Co. reports that its new sewn multiwall paper shipping sack has a reinforced end construction.

This consists of strips of kraft paper between the plies at the bag's top and bottom, giving the effect of an extra ply at points where sewn multiwall breakage is likely to occur. These reinforcing strips are spot pasted to adjacent plies of paper to hold them in position, making them an integral part of the bag construction. They may be applied to sewn valve and sewn open mouth bags. Circle No. 7.

Blister Sealing Machine

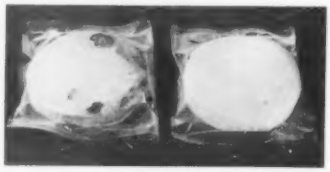
Pyroxylin Products, Inc. has a compressed air activated heat sealing machine for sealing preformed plastic



blisters to their bases, at a rate of six seconds each, at 350 degrees F. The user supplies his own template of either plywood or metal, to use with this machine, which is built primarily for continuous small scale operation. Circle No. 8.

Vacuum, Gas Packaging Material

Standard Packaging Corp. has a new material for vacuum or inert gas packaging of frankfurters, cheese,

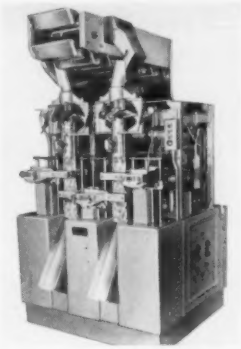


luncheon meats and the like. It is a lamination consisting of polyester film, treated; a specially-developed adhesive, and 150 or 200 gauge poly-

ethylene. The accompanying illustration shows two cheese packages: At left is one using "conventional" film and at right, one using the new lamination, both having been packed over 90 days prior to photographing. Circle No. 9.

Automatic Packaging Machine

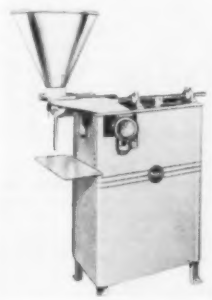
Lynch Corp. announces its "Robo-Wrap" machine which, in a continuous operation, unwinds the roll stock,



forms a pillow-type package, seals it, cuts it off, simultaneously measures a correct portion of product, and feeds it into the package prior to sealing. Lynch reports that this machine uses all of the currently available heat sealing materials and may be fed by augers, volumetric feed devices or a battery of net weight scales. Fully adjustable, size changes may be made in minutes, according to the producer. Circle No. 10.

Small Filling Machine

Hope Machine Co. reports development of a small size (45″ long by 29″ wide by 63″ high) filler for



liquid, viscous or semi-solid products. It has a speed of 12 to 25 strokes a minute with a capacity up to one quart per stroke, filling containers ranging from three-fourths of an ounce to 32 ounces. The hopper has a 40-quart capacity. The machine features a micrometer type full range quantity adjustment of piston stroke while the unit is running. Its one-third h.p. motor has a variable speed adjustment. Contact parts are stainless steel. Circle No. 11.

(Continued on next page)

Don't be fooled about food wrappers

correct packaging calls for wrappers that have wet-strength as well as grease-resistance

HERE'S WHY – most foods contain *both* moisture and grease. So doesn't it stand to reason that for best protection you need a wrapper that has wet-strength and at the same time resists grease? **Patapar Vegetable Parchment** has *both* qualities.

NOTE FIGURES FROM U.S. DEPT. OF AGRICULTURE (CIRCULAR NO. 549):

	Water Content	Grease or fat content
BACON	20%	65%
BEEF	60%	22%
BUTTER	15.5%	81%
CHICKEN	66%	12.6%
CREAM CHEESE	53.3%	36.9%
DUCK	54.3%	28.6%
HAM	42%	35%
MARGARINE	15.5%	81%
PORK LOIN	52%	32%
SAUSAGE	44.8%	41.2%
TURKEY	58.3%	20.2%
VEAL	68%	12%

These are just a few of the hundreds of foods that need the protection of a wrapper, like Patapar, that has WET-STRENGTH as well as GREASE-RESISTANCE.

Patapar is NON-TOXIC and meets every requirement of the Federal Food and Drug Act. It is made in many different types – each tailored for special applications.

Patapar provides sure protection —sales appeal, too!

Patapar's rich, white texture is fresh looking and appealing. It comes in sheets or rolls – plain or colorfully printed. Our printing service includes sketches, art work, typography, engravings. Special inks are used that are colorfast and non-toxic.

Tell us your requirements so we may select the type of Patapar for your application.

Patapar®
Vegetable Parchment
HI-WET-STRENGTH · GREASE-RESISTING

OTHER PATERSON PRODUCTS
*PATAX waxed paper
*DURAPAK parchmentized cellulose
*PATERSON absorbent paper
*PARCHKIN art parchment

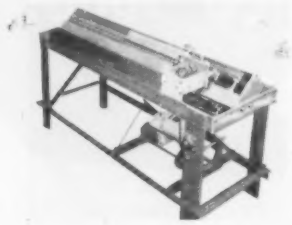
PATERSON PARCHMENT PAPER COMPANY
Bristol, Pennsylvania
Sales Offices: New York, Chicago
West Coast Plant: Sunnyvale, California

HEADQUARTERS FOR VEGETABLE PARCHMENT SINCE 1885

For more information circle No. 220 on Reader Service Card

Imprinting, Coding Machine

The Industrial Marking Equipment Co. announces a conveyorized machine for imprinting code numbers on small,



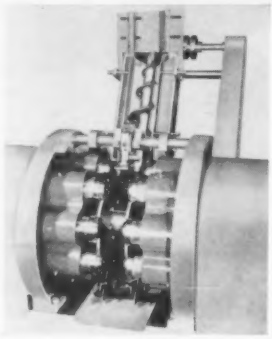
flat objects, such as flat-type resistors. There are two feeding stations to assure continuous operation, and a variable speed motor lets the operator vary the production between 30 and 45 units a minute. Use of a paste-type lacquer ink provides quick drying and uninterrupted flow. A micro-switch on the conveyor stops the machine in event of misplacement of a part into the pockets on the conveyor. Circle No. 12.

Coating For Interior Packing

Stone Container Corp. says that its new coating, "Stone-ize", replaces conventional paraffin-base wax on inner surfaces of corrugated pads where they touch finished metal surfaces such as baked synthetic enamel or stainless steel. The new coating leaves no deposit of waxy residue, but only a fine white powder, which may be wiped off quickly, according to Stone. Circle No. 13.

Can Feed Mechanism

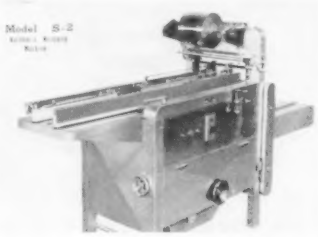
E. W. Bliss Co. reports development of a new spiral-type feeding mechanism designed to accurately locate



can bodies in a flanger at high speed. Because it positively locks can bodies in the flanging turret, it eliminates causes of jams and spoiled bodies, according to Bliss, who notes also that its new feed eliminates the tendency of can bodies to cock or mislocate when gravity-fed at high speed. An accelerated type of spiral separates the cans. Circle No. 14.

Automatic Wrapper

Schooler Mfg. Co. announces its Model S-2 "Wrapmaster" unit, a machine which automatically wraps



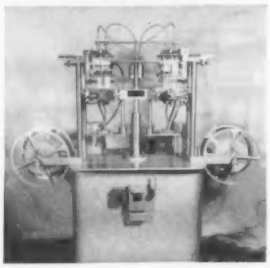
packages so that the longitudinal seam is along a corner. It has a package range from three-fourths to three inches high, five to twelve inches long, and two and one-half to eight inches wide. Speed ranges from 30 to 60 a minute. According to the manufacturer, change-over time is one minute and the machine is fully adjustable, without tools or change parts. Circle No. 15.

Power Roller Curves

Harry J. Ferguson Co. has a powered roller conveyor turn unit, designed to eliminate congestion and slow-downs and to provide a uniform package flow. The driven chain engages sprocket teeth permanently attached to the conveyor so that there is positive drive, without slip. Speed of package movement may be as high as 90 feet a minute. There is a transparent plastic chain guard on the outside of the curve to enclose the moving parts. Circle No. 16.

Liquid Packaging Unit

Brown Bag-Filling Machine Co., Inc. announces its "Liquid Packeter", a unit that forms, fills and seals two



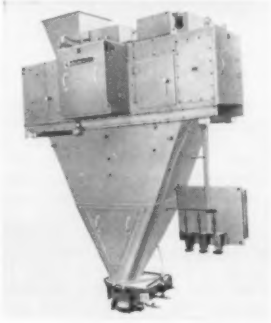
to eight packets in each cycle, with speeds up to 240 packages a minute. This machine is air-operated and its sealing dies are matched to eliminate leakers, according to Brown. Circle No. 17.

Tape Printer

Pacific Paper Cutter Co. Inc. says that its Model SC-55 "Roto-Speed" tape printer is designed for high speed rotary printing on tapes in one color, using flexographic ink and rubber plates. Rollers and plate cylinders are mounted on open end shafts, enabling an operator to web up the machine quickly and accurately, according to the producer. There is a measuring device to shut off the machine automatically when a desired length is printed, after which tape is rewound in predetermined lengths. Circle No. 18.

Automatic Bagging Scale

Richardson Scale Co. reports development of its "Weighblender" unit, a high speed automatic bagging scale



(Continued on Page 44)

Compare or Verify THICKNESSES of Packaging Materials

BOXBOARD • PAPER • FOIL
FELT • PLASTICS • GLASS
Direct Reading • Extremely Accurate

Cady Exact Hand Model Micrometer Shown Designed for Portability; Other Models available . . .

- **Desk and Lab Micrometers**
- **Basis Weight Scales**
- **Bursting Strength Testers**

Write for complete catalog and price list.

E. J. Cady & Company
Manufacturers 674 N. Harlem Ave.
RIVER FOREST, ILLINOIS

Polyethylene bags for Dennisons 'Starletta' bouffant slips are supplied by **Bemis Bro. Bag Co.**, St. Louis 2, Mo., from film produced by **The Visking Corp.**, Terre Haute, Ind.

The polyethylene bag is a

"Big plus for retailers"

And for several reasons, according to Ira Dennison, senior partner, Dennisons of Glens Falls, N. Y.

"The soft smooth feel of the bag imparts to the customer the sense of intimacy usually associated with delicate lingerie; yet the bag's durability makes it ideal for keeping the product fresh and unsoiled until the sale is made.

"Then there's the home storage problem with crisp swirling creations. Our newly-designed bag boasts an eye-catching strap. The slip or crinoline can now hang thoroughly protected in the closet without taking up undue space. And, speaking of space, you can see also how safely and easily they store in the stock room."

Retailers benefit. Manufacturers and jobbers benefit when soft goods are packaged in film made of BAKELITE Brand Polyethylene. Your packaging supplier can show you how. Or write for our "Soft Goods" booklet to Dept. QO-157.

It pays to package in film made of

BAKELITE
BRAND
Polyethylene Plastic

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.
The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

This is

PACKAGE ENGINEERING

case history: #8600 **client:** Bureau of Ships
problem: Improved packaging of large electron tubes

results: Adequate protection against shock with savings of 80% in weight and 75% in cubage, plus a savings of 70% IN COST!

Almost anybody can improve your packaging by increasing your packaging costs.

Almost anybody can save you money by giving you inferior packaging design.

But, when you can get better protection at less cost . . .

THAT'S PACKAGE ENGINEERING

CONTAINER LABORATORIES • INC
packaging consultants since 1923

EXECUTIVE OFFICES: 228 NORTH LA SALLE STREET • CHICAGO 1, ILLINOIS
NEW YORK • CHICAGO • WASHINGTON • SAN FRANCISCO • LOS ANGELES

(Continued from Page 42)

that proportions and bags 10 or more sacks of dry aggregate ingredients a minute. This unit consists of a series of three scales mounted in a base frame, with the bagging hopper beneath, to receive ingredients from all three scales. It handles bags ranging from 25 to 100 pounds. A solenoid-operated air cylinder opens each inlet gate, permitting flow of ingredients to hopper. Circle No. 19.

Bottle Filler And Heat Sealer

Horix Manufacturing Co. announces its new filler and heat sealer for plastic squeeze bottles. Operating at 180 containers a minute, this machine gravity fills bottles upside down, then carries them through the heater — to fuse on the bottom piece which an operator drops in place prior to sealing. Sealed, filled bottles eject automatically, passing to a discharge conveyor. Holders adjust to bottle sizes. Circle No. 20.

Use our Reader Service Card inside back cover

Commerce Department has new literature on packaging

The Department of Commerce announces the availability of Bulletin BSB-143, summary of information on fibrous glass reinforced plastic containers, a five-page report discussing developments, materials, method, molding processes and compounds, general considerations for industrial container use—and related topics, including selected references to current literature. The Department of Commerce, Washington 25, D. C., or any of its field offices will sell this report for ten cents a copy.

Also available from the Department of Commerce is a "Facts for Industry" release covering converted flexible packaging products, January-December, 1955. The Bureau of the Census offers this report at ten cents a copy. However, subsequently monthly reports on this survey may be subscribed to, through the Industry Division, Bureau of the Census, Washington 25, D.C., at one dollar a year. These reports review details, quantities, dollar values, et al, of shipments of specifically enumerated materials.

Industry literature available free

1. Beneath each announcement is a code number. As you select items on which you want more information, *note* this number.
2. Now, *circle* the corresponding numbers on the postcard, located inside back cover.
3. Next, *fill* in your name and address.
4. Then, *mail* the card — we pay the postage.

Packaging Institute Forum

September 10-12 Packaging Institute will hold it's 18th Annual Forum in Cleveland. Details of its technical and general sessions, as well as information about registration are available upon request. Circle No. 101.

Packaging M & M Exposition

September 11-14 the Packaging Machinery and Materials Exposition will take place in Cleveland. Register now on our Reader Service Card, so that your badge will be waiting for you at the show. Circle No. 102.

Tape Maker

Williamson Adhesives, Inc. folder describes its "Tapemaker" machine. It makes pressure-sensitive tape at point of use for immediate application. Handles cloth, paper and film tapes. Circle No. 103.

Aerosol Packaging

General Chemical Division, Allied Chemical & Dye Corp. booklet defines aerosols. It itemizes products now aerosol-packaged, plus those that are likely to be: It describes nine types of propellants and their uses and names 51 contract aerosol filling companies. Circle No. 104.

Squeeze Bottles

W. Braun Co. booklet lists a line of polyethylene bottles in six standard sizes ranging from two to eight ounces. Diagrams and specifications for corresponding fitments are included. Circle No. 105.

Cushioning Material

Armour Curled Hair Div. eight-page booklet reviews uses of its rubberized curled hair called "Hairflex". It can be die-cut, molded or laminated. Load compression curve chart illustrates characteristics. Circle No. 106.

Package Cushioning

B. F. Goodrich outlines problems in cushion packaging in a twelve-page booklet. Appraisal of each design factor with a suggested solution makes this a useful book for the man who must package to resist shock .Circle No. 107.

Molded Padding

Arvey Corp. Fibre Forming Div. submits a six-page folder describing industrial packaging uses of a molded fibre padding called "Fibre Form". Low in cost, it can be used as a contour pack, block, or partition. Circle No. 108.

"Boil And Serve" Package

Standard Packaging Corp. offers Information Bulletin No. 56-5 on its transparent, boilable material; a polyester-polyethylene lamination. It compares vacuum and air pack methods of food preparation for this package. Suggested foods include meats, fish, vegetables, soups, stews, etc. Circle No. 109.

Desiccants

Culligan, Inc. has a new bulletin on "Humi-Sorb", a desiccant for Method II military packaging of items requiring a high degree of protection from water vapor. It includes a comparative absorption capacity chart. Circle No. 110.

Overwrap Trays

Gilbert Plastics, Inc. bulletin pictures its line of basket-type plastic trays suitable for film overwraps. Six sizes range from 4½" x 4⅞" x 1½" to 4⅝" x 7" x 1⅞". Used for baked goods, nuts, fruits, vegetables, fish fillets, etc. Circle No. 111.

Roll Labeling

Oliver Machinery Co. bulletin describes advantages of "Oliver" roll-type heat-seal labels that can be applied by other labeling machines as well as by "Oliver" labelers. Circle No. 112.

Saran Bags

The Dow Chemical Co. has a brochure listing styles of Saran Wrap bags that are available, machinery that handles this material, and converters who can supply it. Bag samples are included. Circle No. 113.

Adhesive Guide

H. B. Fuller Co. has published a handy check list of many different adhesives, showing their specific packaging applications. List of twelve sales offices is included. Circle No. 114.

Paper Pads

Jiffy Manufacturing Co. folder explains use of macerated paper pads as cushioning for packaging case goods, furniture, etc. List of railroad specifications met by this material is included. Circle No. 115.

Glassine-Greaseproof Papers

Riegel Paper Corp. has prepared a booklet that includes a comparison table showing the physical properties and packaging characteristics of 22 grades of glassine and greaseproof papers. Sample swatches are attached. Circle No. 116.

Vinyl Film

The Goodyear Tire & Rubber Co. Inc. offers a folder about "Vitafilm". It is extruded vinyl in one-mil thickness and is suitable for packaging non-food items. Physical properties listed involve tear and tensile strength, ink adhesion, temperature reaction, fading, yield, heat seal, etc. Circle No. 117.

Plywood Containers

Atlas Plywood Corp. offers a handy reference folder of basic styles of hardwood plywood shipping containers. It provides a table showing strengths of various species of plywood. Circle No. 118.

Collapsible Tubes

Collapsible Tube Manufacturers Council lists standard tube sizes and their capacities in fluid ounces and cubic centimeters, in a folder. Names and addresses of 16 tube manufactur-

ing companies are included. Circle No. 119.

Hinged Plastic Boxes

Bradley Industries price list of hinged plastic boxes gives prices on 90 styles, sizes and colors available from stock molds. Circle No. 120.

Metal Edge Boxes

National Metal Edge Box Co. offers a booklet, "The Metal Edge Method". It tells how metal edge boxes, assembled by the user, save storage space, comoine protection, stackability and fine appearance. Circle No. 121.

High Gloss Paper

The Champion Paper and Fibre Co. offers a booklet describing "Kromekote" cast coated paper which is used for labels, wraps, and box covers. Folder gives best methods for handling and printing this paper and lists merchants who sell it. Circle No. 122.

Film Adhesives

National Adhesives' folder "How To Handle Adhesives For Transparent Films" defines types of adhesives, and discusses special adhesion problems. A comparison chart of the properties of 22 films is included. Circle No. 123.

Pail Liners

Jones & Laughlin Steel Corp. makes a polyethylene contour liner which is integral with its' 5 gal. pails. "Ja-Liner" has been tested with food syrups, photo chemicals, germicides, drugs, acids and alkalis. Folder provides details and lists sales offices. Circle No. 124.

Transparent Boxes

Tri-State Plastic Molding Co., Inc. has a file-size folder showing 56 different styles of round and oblong reuse plastic boxes. Made of clear, rigid plastic, these boxes are stock sizes and shapes. Circle No. 125.

Polyester Film

E. I. du Pont de Nemours & Co. (Inc.) offers Bulletin A-9542b describing "Mylar" polyester film. Fourteen diverse packaging applications are reviewed. Circle No. 126.

Cans For Liquid, Dry Items

George D. Ellis & Sons, Inc. announces Product Memo No. 102, a technical data sheet enumerating sizes and capacities of cans for shipping and storing dry, semi-liquid products. Items listed include round slip cover, friction top and screw top cans, as well as square cans with single and multiple friction plugs. Circle No. 127.

Single-Unit Packaging

Dobeckmun Co. has a product analysis report reviewing its "Durafilm" package for individual servings of ketchup and the like. It discusses the usage and requirements of this package as well as the materials, costs, and similar factors. Circle No. 128.

Glass Vials

Kimble Glass Co. offers a set of lists covering its "Opticlear" shell vials. These lists cover prices, dimensions and other specifications and structural features. These include screw cap capsule vials, long and short style screw cap vials, dropper and applicator vials in addition to the shell type vials. Circle No. 129.

Greaseproof Wrapping

Angier Corp. has a data sheet reviewing its Grade A greaseproof wrap, Mylar-laminated "Super Induwrap". In addition to enumerating the properties of this material, the sheet also includes charts showing film comparisons as to impact strength, tensile strength, thermal stability and vapor permeability. Circle No. 130.

Wrapping Machinery

Wran-King Corp. offers an eight-page booklet describing its line of machinery and illustrating its use of change-over parts, with an illustrated halftone diagram of machine and the positions of the parts on the machinery. Circle No. 131.

Bag-In-Box Packaging

Doughboy Industries, Inc. offers a folder containing a case history of a dairy's company's use of Doughboy's heat sealing equipment in connection with a polyethylene bag-corrugated box type of package. A line drawing illustrates the heat sealing details. Circle No. 132.

Plastic Forming Machinery

Comet Industries has an eight-page folder showing details and features of its machinery and the applications of these units. Close-up photos illustrate special features of this machinery. Soecifications are reviewed. Circle No. 133.

Plastic Tapes

Johns-Manville's Dutch Brand Division has a booklet discussing its plastic tapes and similar products. A series of line drawings illustrates the applications of these items. Research facilities of the J-M organization also are discussed. Circle No. 134.

Unitized Load Materials

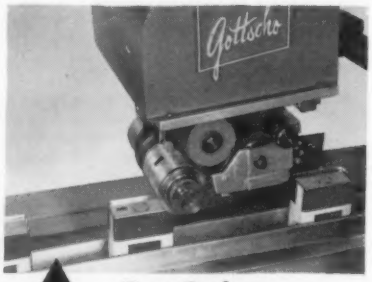
The Mead Corp. offers a booklet reviewing the use and features of its "Poke-Pak" and "Glide-Pak" sheets, made of semi-chemical hardwood pulps, for unitizing of loads, such as of bags. Halftones and descriptive text cover user installations. Circle No. 135.

Coding Problem?

There's a Gottscho automatic code-dating machine for every package, every purpose

Bottom-Coder

This portable, space-saving unit imprints codes on bottom of jars, bottles, cans, etc. as part of an existing production operation. Imprint surface may be flat or concave, flush or recessed. Wheels right up to the line, can be moved about at will. ("Model TB" MARKO-CODER IMPRINTER).



Top-Coder

This motor-driven imprinting attachment places code-dates, other changeable legends on top surface of round or rectangular cans, canisters, jar covers, cartons, boxes. Attaches to conveyor or packaging machine. Gives consistently clean, sharp imprints . . . accurately positioned in any desired location on package top. (ROLAPRINTER "700" MACHINE).

Other standard *Gottscho* imprinting machines available for side-coding, label-coding, wrapper coding.

Submit details of your coding problem for appropriate literature and our recommendation.

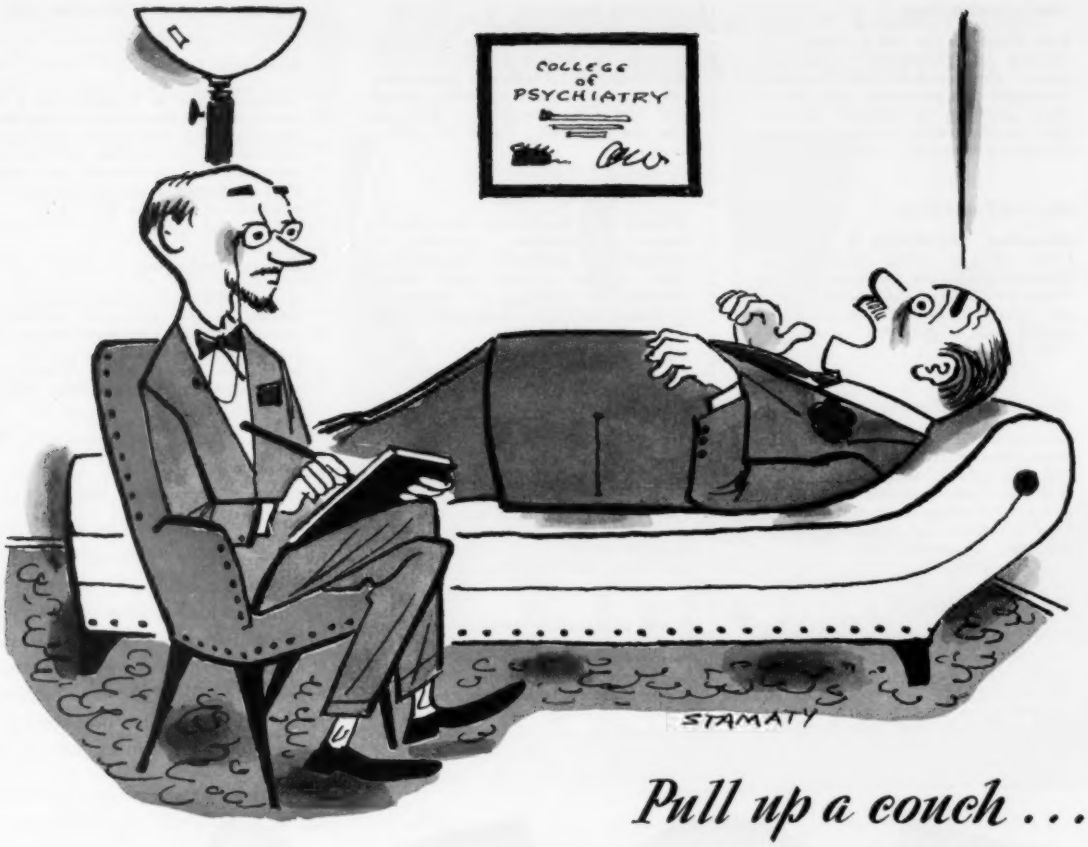
Gottscho

ADOLPH GOTTSCHO, INC.

Dept. S, Hillside 5, N. J.

In Canada: **RICHARDSON AGENCIES, LTD., Toronto & Montreal**

Automatic Production-Line
CODING, MARKING IMPRINTING MACHINES



Pull up a couch . . .

and tell us your Food Packaging Problems

We're finding a cure for lots of packaging problems these days where bleached food board is involved. It's not that we're so smart — we still have lots to learn about the amazing versatility of our new cylinder board production equipment.

But the fact is that our theory of combining short fibre hardwoods with long fibre pulps is working out to produce some truly unique benefits for established users of food boards.

This new mill has been in production only a few months. Now is the time to get in on the ground floor with your specifications for a board that can be high speed multi-color printed, that will fold and score easily and that will be rugged enough for *your* needs.

At this stage we promise nothing but our undivided attention to your story. If we can come up with what you want, this independent mill is in an ideal position to promise regular on schedule delivery of board under all market conditions.

We're listening.

GENERAL SALES OFFICE
CROSSETT, ARKANSAS

BALTIMORE OFFICE
J. W. Taylor
414 St. Paul St.

DALLAS OFFICE
H. E. Manner
3409 Oaklawn Ave.

CHICAGO OFFICE
L. J. Walker, W. V. Williams
D. W. Schwier
300 West Washington

CINCINNATI OFFICE
R. J. Lantry, J. T. Allen
1816 First National Bank Bldg.

CROSSETT PAPER MILLS

A Division of the Crossett Co., Crossett, Arkansas

Plastic-Coated Bags

Kehr Products Co. has a circular describing its "Canvalope", a double-sealed, plastic-coated bag especially developed for packaging powders or other products of extreme fineness, high specific gravity and sensitivity to moisture absorption. Circle No. 136.

Contract Packaging

Bronander Engineering & Research Corp. offers a folder describing its contract packaging facilities, emphasizing the features of its service, types and ranges of products handled, and details such as bundling. Circle No. 137.

Sheeting, Bag Making

Lectromatic Devices Inc. has a four-page folder on its combination sheeter and bag maker, designed to operate with all types of plastic films, paper and similar wrapping materials. Halftones illustrate equipment details and features. Circle No. 138.

Box Sealing Methods

Hinde & Dauch offers a revised edition of its booklet, "How to seal corrugated shipping boxes", a 24-page publication. It discusses hand and automatic sealing procedures, for both regular slotted boxes and specialized box styles. Circle No. 139.

Counting Machinery

F. B. Redington Co. has a catalog showing its various models of counting machines. Halftones accompany the descriptive text, reviewing details and features. Installation close-ups also are included. Circle No. 140.

Color Register Control

Electric Eye Equipment Co. offers a twelve-page booklet reviewing its "Hurletron" automatic proportional color register control, with special attention to features of interest to packaging and converting applications. Circle No. 141.

Cushioning Material

Nichols Paper Products Co. announces availability of the first three of a series of case studies of cushioning and protective packaging material. These reports emphasize a step-by-step approach to such problems and their solutions, and include illustrations as well as a summary of user experience. Circle No. 142.

Cyclic Lubrication Details

Bijur Lubricating Corp. has a two-page service instruction sheet for Type P rotary drive lubricating equipment. Line drawings accompany the explanatory text. Illustrations and details of service parts and meter units also are included. Circle No. 143.

Aluminum Foil

Aluminum Co. of America has a 48-page brochure describing the physical, chemical and mechanical characteristics of foil. Converting methods and materials are discussed in detail. Packaging uses in many industries are enumerated. Circle No. 144.

Exterior Packaging

General Box Co. brochure shows solutions to two industrial packaging problems. This company designs and makes exterior packs of corrugated and fibre boxes, pallet boxes, and wirebound boxes and crates. Circle No. 145.

Another Way To Measure A Corrugated Box

(Continued from Page 36)

to arrive at the scoring allowances which will produce the specified inside dimensions most accurately with their particular sets of manufacturing conditions. The best results are likely to be obtained if the box manufacturer is allowed the prerogative of setting his own scoring allowances.

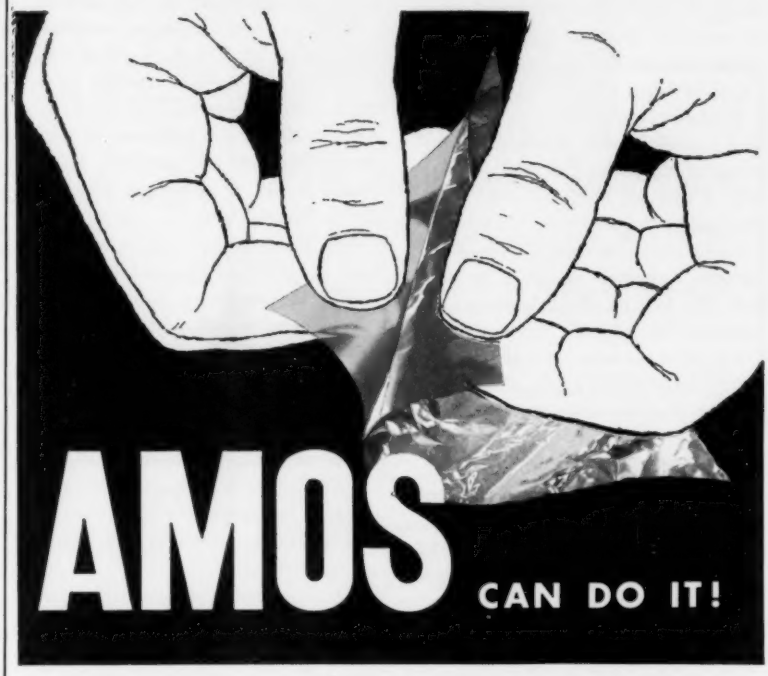
Normally, the container maker assumes the responsibility of producing boxes which have, in fact, the inside dimensions specified by his customer but, if the specifications state what the scoring allowances must be, the customer automatically has taken this responsibility on his own shoulders. All the box manufacturer must do then is to produce boxes which have, within the tolerances stated or implied, the specified distances between the centers of the scores. In view of the conditions described above, boxes so produced will not necessarily have the desired inside dimensions. What is the result? Trouble.

Many troubles can be avoided if they can be anticipated. A procedure suggested by several suppliers and described in the industry technical literature provides a key in this case. All suppliers are told the specified inside dimensions of the box and also are shown the dummy contents which will be used to check samples from each order of boxes supplied. In many cases, these dummy contents can be an adjusted form, often made of aluminum and set exactly to the specified inside dimensions.

The required fit, i.e., "snug", "tight", etc. also is stated and demonstrated. In this manner, the box maker is informed definitely of what is required of him; he is permitted to use his experience and technical skill to achieve that end, and an agreed procedure by means of which the inspector can check his product is established in advance. Thus most of the ordinary troubles are avoided.

It is important, of course, that the dimensions of the form, rounding of corners, etc., be established soundly by the packaging staff of the box user, a task which sometimes presents many difficulties, as indicated in Mr. Harnist's descriptions of the disadvantages of trying to measure set-up boxes. However, it is a task well worth while. A practicable norm for measuring corrugated boxes is the result because it enables the purchaser to know whether he is getting the size required and the supplier to use his skill in providing what the customer wants.

Poly-Coated Packages • Laminates
. . . Whatever Your Need!



Your *complete* source for any kind of volume polyethylene packaging is AMOS. Nothing has been spared to equip a new million dollar plant with every facility. AMOS extrudes its own polyethylene—maintains quality control from start to finish.

This means just *one* responsibility . . . from design to delivery. Each AMOS sales engineer can advise you on the *best* way to package—flexible or rigid. Take advantage of his experience . . . have him call *before* your next job comes up. Write today.

YOUR NEWEST SOURCE FOR THE WHOLE JOB —FROM PLASTIC RESIN TO PRINTED PACKAGE

Packaging Specialists—experienced staff for production, development and sales.

Extrusion, Coating, Laminating—polyethylene film and combinations with foil • "mylar" • cellophane • glassine • papers.

Complete Production—Rolls • Sheets • Bags • Pouches . . . all in one completely new plant.

6-Color Printing—latest equipment using flexographic process.

Package Design—by experienced AMOS designers.

Packaging Laboratory—testing, design and development for all flexible and rigid packaging.

Amos PACKAGING

Polyethylene Film Extrusion • Coating • Laminating • Rolls • Sheets • Bags • Pouches
DIVISION OF AMOS-THOMPSON CORPORATION • EDINBURG, INDIANA

Highlights of Packaging Institute's 18th Annual Forum

The first day's speakers will offer practical approaches to the protection of packaged products against wasted dollars due to failures in these four major problem areas:

Mechanical problems caused by impact damage during production, handling, or shipping, with Allyn Beardsell, Container Laboratories, Inc., chairman.

Biotic problems caused by mold or bacteria, whether apparent or not, with Dr. John C. Bird, Lederle Laboratories, chairman.

Chemical problems caused by reaction between the package materials and the product or products, with W. E. Brown, The Dow Chemical Company, chairman.

Climatic problems caused by conditions involving temperatures, water vapor or moisture, with Dr. L. C. Simerl, Olin Mathieson Chemical Corp., chairman.

Following the opening day's 'buckshot" coverage will be the intensive full day's specialized seminar sessions applying the same valuable problem solution approach to the drug and pharmaceutical seminar, chairmaned by C. B. Burnside of Eli Lilly & Company; food packaging seminar, chairmaned by Dr. L. J. Hayhurst, Kraft Foods Company; flexible packaging seminar chairmaned by W. B. Tibbets, Bakelite Company; printed packaging materials seminar, chairmaned by E. J. Monahan, The National Biscuit Co.

The third day's program will feature a combined production line—packaging machinery seminar under the dual chairmanship of W. B. Bronander, Scandia Manufacturing Company and Carr H. Parsons, Lederle Laboratories. The afternoon of the third day will offer a complete program of planned "open meetings" offering a rare opportunity to observe some of the operations of Packaging Institute's more than twenty technical committees.

Three industry spokesmen including Charles Harper, Sears, Roebuck and Co., will address luncheon meetings. The film entitled "Challenge to America", produced under the direction of the National Association of Advertisers will be presented with an introduction by a Department of Commerce official. How to "protect" the advertising opportunities of packaging will be discussed, with new yardsticks against other available color media by the president of the Package Designers Council, Frank Gianninoto.

Makes ROUND BOTTLES, JARS, CANS, CONTAINERS *Get in Line!*

Styl-O-Matic ROTARY UNSCRAMBLING TABLE

• Cartons of bottles, jars, cans or containers are inverted on to the tilt top table and their contents pushed onto the revolving disc. Units are *automatically regimented and despatched in single file* to the conveyor.

LOWERS HANDLING COSTS ACCELERATES PRODUCTION

• Conveyor carries units to other operations such as filling, capping, labelling, etc. Handles up to 100 units per minute depending upon diameter.

FREE!

MAIL THIS COUPON FOR FULL DETAILS

ISLAND EQUIPMENT CORP. Dept. PE7
27-01 Bridge Plaza North
Long Island City 1, N. Y.

Please send particulars on the Styl-O-Matic Rotary Unscrambling Table.

COMPANY.....

BY.....

ADDRESS.....

CITY.....STATE.....

CLASSIFIED ADVERTISING

Our classified advertising section is intended for use by those wishing to buy or sell used packaging equipment, to employ packaging personnel, seek such employment, offer or seek business opportunities. It is not available for general advertising. Terms: Cash with order. Rates: Up to 60 words, $10.00. If boxed, $20.00. Up to 120 words, $20.00. If boxed, $40.00. Up to 180 words, $30.00. If boxed, $60.00.

Circulation this issue in excess of 35,000

MACHINERY — FOR SALE

Modern Packaging Equipment — Special Offerings: Pneumatic Scale Company fully automatic cartoning line consisting of automatic feeder, bottom sealer, filler, top sealer and compression unit; Karl Kiefer 24 spout stainless steel rotary vacuum fillers; Consolidated 3 and 4 head fully automatic cappers; Horix 18 spout stainless steel rotary filler; Battle Creek Model 46 wrapper with electric eye; Package Machinery Model FA and FA2 wrappers; Filler Machine Company 10 spout stainless steel piston filler; Standard-Knapp and Packomatic case sealers. The above machines range from 5 to 8 years old. They can be purchased rebuilt and guaranteed set up for your requirements. Wanted: Packaging Equipment of all types. Allied Equipment Company, 940 Nepperhan Avenue, Yonkers, New York. Yonkers 5-0442.

MATERIAL WANTED

Plastic Scrap Wanted — We need Polyethylene film and chunk scrap for our own production. Please let us know what you have to offer. Prompt quotations given. Address: Erie Plastics Company, 1059 Buffalo Road, Dept. PT, Erie, Pennsylvania.

HELP WANTED

Packaging Engineer — Work with production and staff management in modern food processing plant. Responsible for maintenance program and staff. Maintain stock of operating supplies and parts. Evaluate and justify improvements in packaging operation.

Engineering training. Three years experience in automatic packaging equipment. Must be able to administer, plan, organize, and execute. Midwest location. Send resume to: Employment Manager, Pillsbury Mills, Inc., Minneapolis 2, Minnesota.

Wanted: Salesman — 25 to 30 years of age, interested in bright future with large growing manufacturer of flexible packaging. Sales experience with Potato Chip or Bakery trade preferred. Midwest Area. Starting salary $5,000 plus expenses. Give full resume and photograph first letter. All our employees know of this ad. Reply to: Box No. 701, PACKAGE ENGINEERING, 1791 W. Howard St., Chicago 26, Illinois.

Packaging Equipment Engineers

Staff positions at Jr and Sr levels are open in the expanding packaging machinery department of our central engineering division. These are career opportunities with an internationally known company now celebrating its 150th anniversary.

If you are a graduate engineer with experience in selecting & adapting new machinery & developing improvements for efficient, high-speed, quality-controlled packaging operations, please advise us in a detailed resume of your education, experience & salary status. All replies will be acknowledged and kept confidential. Write C. B. Jordan, Colgate-Palmolive Co., 300 Park Avenue, New York 22, N.Y.

Index of Advertisers

A-B-C Packaging Machine Corp. 28
Amos Packaging Div. Amos-Thompson Corp. 49
Bakelite Co. Div. Union Carbide and Carbon Corp. 43
E. L. Bivans, Inc. 35
Bronander Engineering & Research Corp. . . inside front cover
E. J. Cady & Co. 42
Container Laboratories, Inc. 44
Crossett Paper Mills 47
Crown Cork & Seal Co., Inc. 6, 7
Dobeckmun Co. 5
Doughboy Industries, Inc. 31
Dow Corning Corp. 8
J. L. Ferguson Co. 39
The Filler Machine Co. 51
Adolph Gottscho, Inc. 46
Hudson-Sharp Machine Co. 40
Island Equipment Corp. 50
The Mead Corp. 34
Mid-States Gummed Paper Co. 48
Minnesota Mining & Manufacturing Co. 9
Paisley Products Inc. 3
Paterson Parchment Paper Co. 41
Peters-Dalton, Inc. 27
The Pfaudler Co. 37
Reynolds Metals Co. 1
Riegel Paper Corp. 19
Scandia Manufacturing Co. . . . . inside front cover
Sheffield Tube Corp. 10
H. P. Smith Paper Co. 21
The Visking Corp. . . . . inside back cover
Waxed Paper Merchandising Council, Inc. 22, 23
A. H. Wirz, Inc. . . . . outside back cover

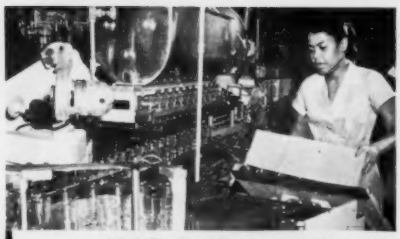
How to address Package Engineering:

Our executive and editorial offices are located at:

1791 West Howard Street,
Chicago 26, Illinois

Please address all correspondence to us at our Chicago address, including queries about circulation.

Only our Reader Service Cards (on which you circle numbers, asking for information or literature) go to P. O. Box 95, Village Station, New York 14, New York. These cards go through a processing operation. For all other purposes, we use our Chicago address.



A complete Filler Machine Co. line at Brook-Maid Co., Inc., Brooklyn including unscrambler, cleaner and straight line filler filling jams, jellies and preserves.

USE THE MODEL SL-55

To Fill Semi-Liquids, Semi-Solids

You'll get *more accurate filling, quicker cleaning, faster change over* when you use a Filler Model SL-55 piston type automatic filler!

- they handle from 2 oz. to quart and 2 lb. containers, fill food, dairy, paint and chemical products.
- you get faster, easier cleaning since the valve mechanism can be dismantled quickly
- positive accurate filling is assured every time because valves are air-free and pallets are air operated
- all contact parts and parts around the filling zone are 18-8 stainless steel
- a "no container, no fill" feature saves the product from being wasted and keeps the machine clean
- speed of fill is from 60 to 300 containers per minute, depending upon size of machine.

Get further details today on this model or our other models of filling machines and let us bid on your job.

The **FILLER MACHINE CO., INC.**
the original builder of Philadelphia piston fillers
12 Penn Avenue, Rockledge, Philadelphia 11, Penna.

For more information circle No. 229 on Card

Need a copy of some Package Engineering article?

When you want your own copy of a particular article appearing in Package Engineering, simply let us know. If you will write us on your letterhead asking for that article, we shall send you a copy of it—with our compliments. This way, you don't have to clip your copy to get the article.

Or, do you need reprints in quantities?

Frequently, companies want reprints in quantities, such as for packaging management discussions or in-plant training programs. Our business office will gladly quote you reprint prices for any quantity you want.

Package Engineering
1791 West Howard Street, Chicago 26, Illinois

One of our most striking impressions gained from countless plant visits is the variance in production and efficiency between substantially similar plants. Using about the same types of packaging machinery and methods to produce and package similar items, some plants seem to get so much more out of their facilities than others do.

Close scrutiny of apparently similar plants suggests that the difference between those that really get the most out of their packaging operations and those that attain merely average production is the encouragement which the managements of the more efficient installations give to those who come up with ideas for all kinds of improvements in methods and equipment. The more efficient plants give their engineers, mechanics and line personnel a freedom of expression — thus providing an atmosphere conducive to what we might call practical production engineering.

A plant manager or packaging supervisor who develops and encourages able packaging line mechanics is building an important foundation for peak efficiency operation. Mechanics who can repair, adjust and maintain packaging machinery while under stress to do the job with top speed, and who go about their tasks calmly, methodically and without getting rattled are hard to come by. It may take ten years to develop a man who fully appreciates the urgency of getting a stopped machine back into production, and who can do his job without panicking or throwing his tools around while eight or a dozen people are hovering over his shoulder, eagerly waiting for him to get the line running again.

But the expeditious handling of breakdowns is only half the picture. The other half is far more vital: An ability to conceive, develop and put into operation a wide range of shortcuts, gadgeteering, and mechanical improvements, all on a more or less continuous basis. The plant or company that is making the most of this positive approach to packaging line improvement seems to be aware of three major concepts:

1. Ideas come from all functions and levels throughout the organization, from top management to line personnel.

2. Management must support and encourage the sparking of these ideas at all levels, to make them operative, or at least to give them adequate trial.

3. The final arbiter is the volume of satisfactory production at the end of a day, week or year, and anything likely to contribute to stepped-up production (without increasing costs or impairing total efficiency) deserves consideration.

Perhaps the real secret of successfully capitalizing on the ideas of people all along the line is the *climate* which management creates. Are ideas really encouraged or does management tend to minimize the creative potential of those who run the machines? Are ideas, once accepted, given a fair trial? Does management have the courage to spend large sums to try out method and equipment developments that appear to have real potential?

Is management too hasty to abandon an apparently unsuccessful project? Finally, when something that initially offered great promise fails and is dropped, is the abandonment handled in such a way that those who came up with the original idea are not discouraged, and are urged to keep up their interest in packaging line innovations and developments?

It all boils down to this: The man who signs the checks must have an inherent faith in the ability of the sponsors of a project to develop it and make it work. This is true whether it is a plant manager selling his president, an industrial engineer selling his plant superintendent, or a packaging line mechanic selling his line supervisor.

All this assumes that the mechanics, engineers and plant management know how to deliver the goods, and that they carefully plan and articulately present their projects. But unless their ideas have the fullest support of management, the organization is not getting the most from the resources at hand.

We think that an occasional failure, even an operational blunder, is a small price to pay for the nurturing and flowering of a developmental climate that encourages the hatching of ideas contributing to the fullest stepping-up of production and effectiveness. Further, we have noticed that a progressive management will even permit an operational manager to make a serious error (as long as not too much damage results) rather than force him to act against his judgment. Such an attitude is highly conducive to top efficiency in the long run.

It would be easy to cite examples illustrative of our points, but to name names would serve no useful purpose. In plants and management who are not providing a climate for realistic and creative engineering there are at least a few key people who are reasonably well aware of this. We urge them to study carefully the experiences and productivity of those who do provide this climate — and who are reaping the benefits of so doing.

Bruce Holmgren

Editor

ELONG ATION

the secret behind non-breaking film packages

Controlled elongation in both directions gives VISQUEEN film the strength, uniformity and body that prevents package breakage. Improves product protection in transit and stores, too. VISQUEEN film has the stiffness and uniformity that permits easier handling, quicker fabricating and faster bag filling and closing.

VISQUEEN® 'C'

is *the* printable film. Unmatched for ink adhesion. Ink stays on—won't come off.

VISQUEEN

has superior stiffness and body—keeps packaging lines operating at higher speeds.

VISQUEEN

is tougher, has greater tensile strength, better resistance to tear and puncture. **VISQUEEN** is economical to use—cuts packaging costs as much as 50%—improves overall packaging.

Important! *VISQUEEN film is all polyethylene, but not all polyethylene is VISQUEEN. Only VISQUEEN has the benefit of research and resources of The VISKING Corporation.*

mail coupon for names of converters of VISQUEEN film serving your area

VisQueen® film . . . a product of

THE VISKING CORPORATION

Plastics Division, P. O. Box PE7-1410, Terre Haute, Indiana
World's largest producers of polyethylene sheeting and tubing
In Canada: VISKING LIMITED • Lindsay, Ontario
In England: British VISQUEEN Limited • Stevenage

Name_____

Title_____

Products_____

For more information circle No. 230 on Reader Service Card

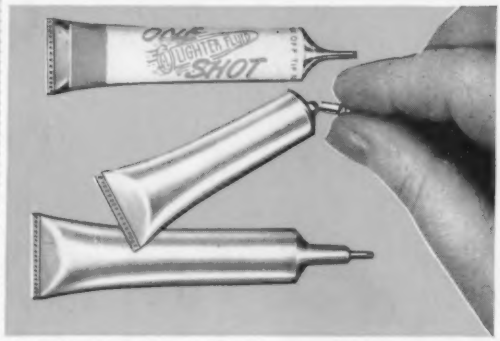
pack and sell in tubes by WIRZ

IDEAS THAT INDICATE THE GROWING LIST OF PRODUCTS SUCCESSFULLY PACKAGED FOR GREATER SALES IN FOLD-UP METAL TUBES BY WIRZ.

WIRZ Tubes are Engineered to Meet Specific Problems

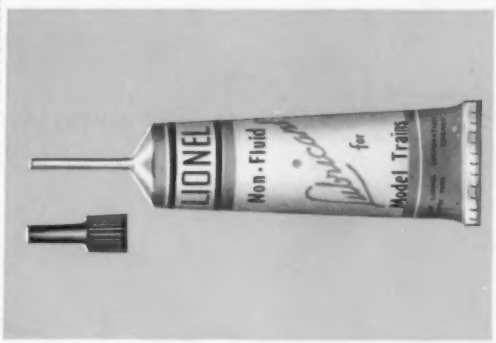
THE PERFECT SINGLE USE CONTAINER

The collapsible metal tube with break-off applicator tip—a variety of types and sizes to fit every need.



Ready-Peel® tube decoration peels off in seconds for easy prescription labelling of pharmaceuticals by druggist or physician.

Close fitting parts for models are readily lubricated with special tip that is widely adaptable to precision industries. Wirz welcomes challenging problems.



ESTABLISHED 1836
A. H. WIRZ Inc.

Write us today about your special packaging needs.

COLLAPSIBLE METAL TUBES AND PLASTIC MOLDING

ALSO RIGID CANS AND IMPACT EXTRUSIONS BY AMERICAN EXTRUSION CORPORATION, DIVISION OF A. H. WIRZ INC

4th & IRWIN STREETS; CHESTER, PA.
Branch Plant: Carrollton, Kentucky

New York 17, N.Y. 50-E. 42nd St.
Chicago 4, Ill. 80 E. Jackson Blvd.
Memphis 2, Tenn. Wurzburg Bros.
Los Angeles 48, Calif. 435 S. La Cienega Blvd.
Havana, Cuba Roberto Ortiz & Son
Export Div.—1010 Schaff Bldg. Philadelphia 2, Pennsylvania

For more information circle No. 231 on Reader Service Card